The Builder.

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The Squares of Bloomsbury.

THE name of Bloomsbury is of considerable antiquity, although the district itself was not built upon to any extent before the middle of the seventeenth century. It is a corruption of Blemundsbury, the manor of the De Blemontes, Blemunds, or Blemmots, in the reigns of Henry III. and Edward I., but an absurd statement has found its way into books that the name was originally Lomsberry. This mistake must have originated from the letter B having been dropped by the printer in the first book in which Lomsberry is mentioned, for such a name never really existed. Blemund's Dyche, which was afterwards called Bloomsbury Great Ditch, and Southampton Sewer, divided the two manors of St. Giles and Bloomsbury, and the whole northern division of St. Giles's parish is called in the old parish books "Bloomsbury side." The manor-house of the Blemunds stood on the site of the present Bedford-place, and is described in the St. Giles's Hospital Grant as "the capital messauge of William Blemund." The manor passed through several hands before it came into the possession of Thomas Wriothesley, Lord Chancellor to Henry VIII., who was created Earl of Southampton three days before the coronation of Edward VI. Henry, the third earl, who was the patron of Shakspeare, purchased the manor of St. Giles, which he united to that of Bloomsbury, and the two manors have remained together to the present day. Thomas, the fourth and last earl, who was Lord Treasurer to Charles II. and father of Lady Rachel Russell, rebuilt the manor-house and made it form the north side of a new square, which undertaking is noticed in Evelyn's Diary under date 9th of February, 1665:—"Dined at my Lord Treasurer's, the Earle of Southampton, in Blomesbury, where he was building a noble square or piazza, a little towne; his owne house stands too low, some noble roomes, a pretty cedar chapell, a naked garden to the north, but good aire." Pepys also noticed what was going on, and wrote in his diary, "To my Lord Sandwich's through my Lord Southampton's new buildings in the fields behind Gray's Inn, and indeed they are a very great and a noble work." Southampton House is generally stated to have been the work of Inigo Jones, but that great architect died eight years before the Restoration, and Mr. Peter Cunningham therefore suggested that it might have been by his pupil, Webb. The Earl of Southampton died in 1667 at this house, which is described by a contemporary writer as "near Holburne, in the suburbs of London." In the same year his daughter, Lady Rachel Wriothesley, married William Lord Russell, and the pair lived in Southampton House. It was said that when the patriot Lord passed here on his way to execution in Lincoln's Inn Fields, he threw a sorrowful look at the place where he had spent many happy years. His widow lived here till her death at eighty-seven, in 1723. The Countess of Southampton, second wife of Lord Treasurer Southampton, and step-mother of Lady Rachel Russell, was also living here in 1699. In 1704 the Duke of Bedford moved to Southampton House from Bedford House, Covent-garden, which was pulled down in the same year. Hatton, in 1708, describes the Duke as living "on the north side of Blomesbury-square, at the Lady Russel's, *alias* Southampton House." In the plan of St. Giles's parish given in Strype's edition of Stow (1720), the gardens of Montague House (now the British Museum), and those of Southampton House, are shown to adjoin, and beyond them were the Southampton-fields and the country. Strype, when writing of Great Russell-street, with its gardens on the north side towards Highgate and Hampstead, says "That it is considered by physicians as the most healthful [street] of any in London." Francis, fifth Duke of Bedford, sold the house in 1800, in which year it was pulled down, and new buildings planned out. It was thought strange at the time that the Duke should sell not only his house, but all the furniture and pictures in it. A week after the sale of the contents of the house, the double rows of lime-trees in the garden, and the ancient stem of the light and graceful acacia, which stood in the court before the house, and was commended by Walpole in his "Essay on Landscape Gardening," were also sold.

Bloomsbury-square was built, as we have already mentioned, in 1665, by the Earl of Southampton, whose house formed the whole north side until 1800, when new houses and Bedford-place were erected on its site. It was originally called Southampton-square, and is so named in Strype's "Stow" (1720), although long before that date it was known as Bloomsbury-square. "My Lady Baltingglasse's house in the great square of Bloomsbury," is mentioned in the *London Gazette* for 1674. Like Lincoln's-inn-fields, each side of the square had formerly a different name: thus the South side was Vernon row or street; the east, Seymour-row; and the west, Allington or Arlington row. Lord Castleton lived on the south side, in 1708, as did also Sir Hans Sloane. Ray directed to the latter, in 1696, "At the corner of Southampton-street, next Bloomsbury-square"; and another correspondent, in 1704, varied the address as follows:—"At his house at the corner of Southampton-square, Bloomsbury." The Earl of Chesterfield, mentioned in Grammont's Memoirs, lived on the east side in 1681, at the family mansion, which was inhabited by several of his descendants. Lord Paget was on the east side in 1708, and the great Lord Mansfield's house was at the north end of the same side, on the site of three houses since erected. During the Gordon Riots, of 1780, the mansion was plundered and burnt to ashes, and Lord and Lady Mansfield only made their escape by a back-door a few minutes before the rioters broke in and took possession of the premises. In 1708 Lord Northampton and Lord Chief Justice Trevor lived on the west side. The latter was Sir Thomas Trevor, successively solicitor and attorney general and Lord Chief Justice of the Common Pleas. In 1711 he was created Lord Trevor of Bromham, in Beds; in 1726, appointed Lord Privy Seal; and in 1730, one month before his death, president of the Council. He was the second son of Sir John Trevor, Secretary of State in Charles II.'s reign, and is not to be confounded with the corrupt Sir John Trevor, Speaker of the House of Commons and Master of the Rolls. Other distinguished inhabitants that must be mentioned are the great Nonconformist, Richard Baxter, whose wife died in 1681 in what he calls "this most pleasant and convenient house;" Dr. Radcliffe, the physician; Akenside, the poet, who was settled by his munificent patron, Jeremiah Dyson, "in a small but handsome house;" the great Lord Ellenborough before he removed to St. James's-square; and Isaac Disraeli, in a house (No. 6) built by Isaac Ware. Bloomsbury-square was once a favourite place of residence for the great lawyers, but after the building of Bedford and Russell squares they migrated to these more agreeable spots. In 1822, however, Lord Chief Justice Dallas lived at No. 39. Now the houses are given over to solicitors and architects for their offices, and to lodging-house keepers. There is still, however, one eminent inhabitant, viz., Sir Antonio Panizzi, the late principal librarian of the British Museum, and the large building at the north-west corner is occupied by the Pharmaceutical Society. The bronze statue of Charles James Fox, by Westmacott, which is placed in the enclosure opposite Bedford-place, is 9 ft. high, and stands on a pedestal of granite. It was set up in the year 1816.

Maitland states that in 1739 the number of houses in Bloomsbury was only 954; but we find that from 1792, when the enterprising architect, James Burton, began to build upon the Foundling Hospital estate, until 1829 1,198 houses were built within the parish of St. George, Bloomsbury, and no fewer than 663 of these were built by or for Mr. Burton within a period of only eleven years, viz., from 1792 to 1803. Southampton-fields, afterwards called Long-fields, were notorious for centuries as the resort of the depraved, and robberies and murders were frequently committed in them. The fields at the back of Montague House were famous for many years as the favourite resort of duellists; but an extract from Aubrey's Miscellanies shows them in a more agreeable light. "The last summer on the day of St. John Baptist (1694), I accidentally was walking in the pasture behind Montague House; it was twelve o'clock. I saw there about two or three and twenty young women, most of them well habited, on their knees very busie, as if they had been weeding. I could not presently learn what the matter was; at last a young man told me they were looking for a coal under the root of a plantain to put under their heads that night, and they should dream who would be their husbands. It was to be found that day and hour." The ground at the back of the west end of Great Russell-street was formerly occupied by Capper's Farm, which belonged to two maiden sisters of that name. J. T. Smith describes them in his "Book for a Rainy Day" as wearing riding-habits and men's hats. "One rode an old grey mare, and it was her spiteful delight to ride with a large pair of shears after boys who were flying their kites, purposely to cut their strings; the other sister's business was to seize the clothes of the lads who trespassed upon their premises to bathe." The north-east end of Upper Montague-street is the site of the celebrated "Brothers' Steps," or "Field of Forty Footsteps," which took this name from a legendary story that two brothers were in love with one lady, who would not declare a preference for either, but coolly sat upon a bank to witness the termination of a duel that proved fatal to both. It is said that the bank upon which the lady sat, and the footmarks of the brothers when pacing the ground, never produced grass again. For the energy and skill which changed these dangerous places into handsome squares and spacious streets, London was indebted to Mr. Burton. Russell-square was built about the year 1804, and the bronze statue of Francis, Duke of Bedford, by Sir Richard Westmacott, which looks down Bedford-place towards that of Fox in Bloomsbury-square, was erected in 1809. When the buildings were in progress, a great quantity of brick-clay was taken from the centre, and the gap occasioned thereby was not filled up, so that the garden was formed in too great a hollow. Many years before Russell-square was built, Baltimore House stood alone upon a portion of its site. In 1767, a milliner was decoyed here by the abandoned accomplices of the last Lord Baltimore, and in the following year that nobleman and his two

creatures were tried at Kingston for the abduction of this young woman, whose name was Woodcock. When the square was planned, Baltimore House was made to form a part of the east side, and in 1803, and for many years afterwards Wedderburne, Lord Chancellor Loughborough, and subsequently Earl of Rosslyn, was its occupant. It was afterwards the residence of the Duke of Bolton, when it was called Bolton House, and it is now divided into two houses (Nos. 66-67). Three houses were also built upon the courtyard, and are now numbered 68, 69, and 70, and a house at the back, which is really in Guildford-street, but is treated as in Russell-square, and was for some time the residence of Professor Donaldson, is called Bolton Gardens House. The few houses on the east side of the square, between Guildford and Bernard streets, were originally known under the distinctive name of Southampton-terrace. Thomas Tooke lived at No. 12 in 1822, and William Tooke at the same house in 1829, and for some years after. Sir Samuel Romilly was living at No. 21 in 1818, when he took his own life in a fit of insanity. Lord Tenterden, Lord Chief Justice of the King's Bench, inhabited No. 28, for some years; and Mr. Justice Holroyd was at No. 46 during a few of the same years. Thomas Denman, afterwards Lord Denman, lived at No. 50; and Sir Thomas Lawrence in a portion of Bolton House, from 1805 to 1830, the last twenty-five years of his life. The Rev. John Mitford, writing in the *Gentleman's Magazine* for January, 1818, says: "We shall never forget the Cossacks, mounted on their small white horses, with their long spears grounded, standing centinels at the door of this great painter, whilst he was taking the portrait of their general, Platoff." The lawyers have always been fond of Russell-square. It was once the favoured residence of the judges and distinguished counsel, but now it is given over to the solicitors. In this present year, among the inhabitants are a baron, a baronet, an alderman, and a member of Parliament, some physicians, and other professional men. We cannot dismiss this square without noting the prominent position it occupies in Thackeray's "Vanity Fair," as the residence of the Selbys and the Osbornes, for the imaginary characters of fiction often throw a greater interest over a place than do beings of real flesh and blood.

The district usually understood as Bloomsbury, extends beyond the mere parish boundaries; therefore we need no excuse for including Bedford and Queen squares among the squares of Bloomsbury. Bedford-square was planned out in the very latest years of the eighteenth century. It was formerly even more than Russell-square the favoured place of residence for the judges. Mr. Justice Littledale lived at No. 5 in 1829, and Lord Chancellor Eldon next door, at No. 6, from 1804 to 1815, in which latter year he moved to Hamilton-place, Piccadilly. It was in his Bedford-square house that the memorable interview between Lord Eldon and the Prince Regent took place. The prince came alone to see the Lord Chancellor, when he was laid up with the gout, in order to obtain for Jekyll, the great wit, the vacant office of Master in Chancery. On the Chancellor's refusing, the prince threw himself back in his chair, and exclaimed, "How I pity Lady Eldon!" "Good God," said Lord Eldon, "what is the matter?" "Oh, nothing," answered the prince, "except that she will never see you again, for here I remain until you promise to make Jekyll a Master in Chancery." The result of such pertinacity was as might be expected, that the new Master was appointed then and there. Mr. Justice Burrough lived at No. 16, in 1829, and Basil Montagu, Q.C., the son of the Earl of Sandwich and Miss Reay, and editor of Bacon's works, at No. 25, in the same year. Lord Chief Justice Best occupied No. 29, and Mr. Justice Park No. 32, for several years at the beginning of the present century. Sir N. C. Tindal, Solicitor-General, was at No. 43, in 1829. This is a good list of legal luminaries, but now no judges are to be found in the neighbourhood. In 1873 the square can boast of possessing, amongst its inhabitants, a member of Parliament, and a consul-general, but most of the houses are occupied by medical men, professors of singing, &c., and artists. There is an Insurance Company and a Ladies' College, but no shops have yet intruded upon the privacy of the place. A part of the east side of Bedford-square, and twelve houses in Brunswick-square are in the parish of St. George's, Bloomsbury; but Queen-square is entirely without the parish boundaries. The latter place is an outgrowth from the parish of St. Andrew, Holborn. In 1705 Sir Streynsham Master and fourteen others, who had been appointed trustees to conduct the business, agreed with a Mr. Tooley to give him 3,500*l.* for erecting a chapel and two houses on the site of the south-west side of Queen-square. In the following year the buildings were finished, but the commissioners for erecting the fifty new churches resolving to make this chapel one of the number, purchased it of the proprietors. A certain district was appointed for its parish, and the church was consecrated in 1723, when it was dedicated to St. George the Martyr, in compliment to Sir Streynsham Master, who had been governor of Fort St. George, in the East Indies.

Queen-square was named in honour of Queen Anne; and Dobie, in his history of St. Giles's, says that in 1713 it was called St. George's-square; but this must be a mistake, for in Hatton's New View of London (1708) it is described, under the name of Queen-square, as being then designed. This square has only three sides built upon, as the north side was left open, so that the inhabitants might enjoy the view. Now there are miles of bricks and mortar between the square and the fields. In Dodsley's "London and its Environs" (1761), we read,—"This is an area of a peculiar kind, it being left open on one side for the sake of the beautiful landscape formed by the hills of Highgate and Hampstead, together with the adjacent fields. A delicacy worthy, as it is an advantage to the inhabitants, and a beauty even with regard to the square itself." Alderman Barber, the printer, who erected the monument to Butler in Poets' Corner, died here in 1741, and in 1745 Jonathan Richardson the critic also died here, as did his son, Jonathan Richardson, in 1770. William Stukeley, F.R.S., called by his friends the "Arch-Druid of his age," who held the living of St. George the Martyr from the year 1747, died at his house in the square on March 3, 1765, in his 78th year. Dr. John Campbell, author of the "Lives of the Admirals," lived for some years at the north-west corner house, where most men of eminence in science and literature of his day used to resort on Sunday evenings. Dr. Johnson once said, "I used to go pretty often to Campbell's on a Sunday evening till I began to consider that the shoals of Scotchmen who flocked about him might probably say, when anything of mine was well done, 'Ay, ay, he has learnt this of Cawmell.'" Dr. Anthony Askew, who died in 1784, formed his celebrated library, which sold for 5,000*l.*, at his house in this square. Now most of the houses are occupied by societies, schools, colleges, homes, and hospitals. Dr. Williams's library, which was formerly in Red-cross-street, Cripplegate, is now located at No. 8. This library was formed by the Rev. Daniel Williams, D.D., who, at his death, in January, 1715-16, left it to the public, but more especially for the benefit of Dissenting ministers. Torrington and Woburn squares have but little history. The former was completed about 1829, and according to Dobie, "it has proved a very successful speculation to its very industrious and worthy builder, Mr. Sims." No. 55 was the last London residence of the learned antiquary, Sir Nicholas Harris Nicolas, and the Right Hon. Sir John T. Coleridge lived in the square in 1829. Woburn-square was planned a few years after Torrington-square; but was in progress in 1829. Dobie states that it was to be called Rothesay-square.

When London, some years ago, was divided into districts, for the purpose of facilitating the work of the post-office, Bloomsbury was included in the west central district. We thus see that, in the short space of little more than half a century, London has so greatly increased in size that the streets and squares of Bloomsbury, which, at the end of the eighteenth century, were situated at the extreme north, have now become the very centre of the town.

Want of Houses at Ashby-de-la-Zouch.—The population of the town itself does not exceed 4,000, and is not likely to increase under present circumstances, for want of more house accommodation. Persons retiring from active life in the larger towns are frequently inquiring in Ashby for houses from 20*l.* to 50*l.* rental. Those who own the land around about, it is said, could not do the town a greater service than by selling or leasing land for building purposes.

ILL-PAID LABOUR: A SOCIAL DANGER.

We have taken occasion before now to call the attention of our readers to the effect of a great law of mechanics,—or we may say a great law of nature,—that known as the law of the line of least resistance. Its effect is, that when strain is put upon any body, organisation, or system, the weakest point is the first that yields. Thus, in point of fact, no mechanism, whatever be its nature, is stronger than its own most inefficient part. It is not the best, but the worst, of a thing by which its mechanical value is to be tested. Let us go to any cost, let us apply any amount of skill, genius, and labour to our work, the important fact can never be altered, and ought never to be neglected, that the strength and durability of the whole are accurately determined by those of the weakest part. One faulty rivet might sink an ironclad.

We wish our readers to accompany us in a little further consideration of this subject of the weakest point, and to reflect on the great truth that the stability and grandeur of the whole stately fabric of the British Empire depends, intimately and irrevocably, on the resisting power, not of the strongest, but of the feeblest part of our complex social organisation.

It was remarked by the writer of a pamphlet which we noticed on its first appearance, two years ago, that "when distress and misery accumulate to a certain pitch, outburst is certain to occur." If that great flood of trouble, of which only the very crests of the waves come to the notice of the general public, should burst its barriers in our time, it will not be the powerful, the noble, and the wealthy, who will be the first sufferers. Our danger lies, not so much in an assault on established institutions, as in the crumbling away of the lower *strata* of the social pyramid. We do not fear the angry surge of crime so much as the insidious canker of poverty. The evil that most threatens us is the gradual expansion of the quagmire of absolute pauperism,—the involving in its mischief of individuals, and families, and trades, that now maintain a brave hand-to-hand struggle with hunger, want, and disease. A Spanish proverb says,—"If you see your enemy in the water up to his knees, give him a hand and help him out. If you see that he is up to his waist, give him your hand and help him out. If you see him up to his shoulders, jump on him, and keep his head under." We fear those among us may be numbered by more than hundreds of thousands who are in the water much higher than the waist. The enemy who waits yet a little before jumping on and holding their heads under, is pauperism.

People who live in perfect ease are often little aware of the brave struggle which the respectable poor man makes to keep above the level of the pauper. In Saxony, for example, the people are far poorer than they are in England. But the case of a person dying from starvation was never known to occur in Saxony. Hardly a week passes, in the severer season of the year, without instances of death from actual want and starvation finding their way into the London papers. And for one that thus filters to the surface,—how many are there unreported? Again, how small a proportion do the deaths that positively occur from the want of the daily bread on the day of decease bear to those which are matured by the slow process of destruction of the vital power by a course of insufficient food, warmth, and comfort?

The part of our social system, then, which, as being the weakest, chiefly demands the anxious care of the true statesman, is that of the classes who are only just above the level of the poor-house; those who can just feed, or half feed,—clothe, or half clothe, themselves,—house themselves, or do without housing. It is highly important that the state and condition of these classes of the community should be fully and distinctly brought before the public. There is an enormous amount of charity bestowed in England. Some of it is given from the purest motives. We think that it is a melancholy reflection that so much money, given from a sense of religious duty, should be spent with the object of indoctrinating negroes or other people with special theological views. Upwards of 50,000*l.* per annum are raised and spent in order to prove to the ancient people of Israel how much superior is the wisdom of our modern institutions, based on what we call an enlightened religious knowledge,—to that ancient law which so tenderly provided for the poor, and which bade those who were themselves in comfort relinquish up to one-fifth of their income when there was need among their poorer brethren

It is not, however, in this way alone, but in many, that we have to inquire as to the distribution of our charity. There are, first, the true almsgivers,—the good parson, the good squire, the good lady of squire or parson, where these are not improved away by modern progress,—those who know the poor and sick of their parish,—who make the relief that they personally bestow of twofold value by kind words, good advice, and cheering sympathy. The most perfect system of alms-giving ever organised in the world is that of the Jews. Alms, according to the precepts of their law, are at once a debt due to man, and a plea for the favour of Heaven. The virtue and merit of alms-giving has eight distinct grades, the principles being that neither he who gives because he cannot help doing so, nor he who gives openly and ostentatiously, has any but the very smallest share of merit. Highest in the scale stands he who so gives that the left hand shall not know what the right hand doeth. But yet, higher is the praise of that man who prevents alms, by so aiding the tottering as to enable him to avoid a fall. He who, not by ostentatious gift, but by timely loan (so that it be a loan of free heart and free hand, not to be exacted till a fitting time) does this, has more than all burnt offering and sacrifice set down to his account in that great symbolical book in which, in some form or other, all men tacitly believe.

There are, then, the wisest and most useful givers of alms. There are the honest, religious, but prejudiced or misguided givers, who waste their alms. There are the ostentatious givers, who have their reward by the publication of their name in the newspapers; and to whose money, somehow or other, the want of a fructifying benediction often seems to cling. And so we come to the lowest, and smallest, and most insignificant,—but at the same time the most munificent givers,—to the poor who give alms to the poor; and we have no hesitation in saying that the actual total of these widows' mites is such as to exceed that of the silver crowns and golden sovereigns of all the other classes put together. In true merit,—that is to say, in ready self-sacrifice,—it is only the alms of the first class of givers, the personal visitors of the poor, that can compare with those of the poor man himself. The farthing of the latter is worth the crown of the theological subscriber, and outweighs the guinea of the Pharisee. But leaving any question of moral weight aside, the actual amount of money help which the poor give to the poor is greater than that which the rich give to the poor. It is larger, and it is far better administered.

It might ensue, from this consideration alone,—and there is ample proof to be collected from fact—that the timely help is of far more service than the larger but deferred donation. It may be a very great question whether our eleemosynary organisation, as a nation, is not based on a false principle. The matter has to be regarded from two entirely distinct points of view,—namely, the economical and the moral. The new principle has been adopted of late years that supplementary aid to the poor should be discouraged. The poor-house was intended to be the last resource. It was to stand between the poor man and starvation, when he touches starvation point; in he may go if he likes. But the help which should prevent him from going in is not contemplated by the wisdom of Parliament. On the contrary, it is discouraged as much as possible. It may even yet be matter of question whether this wisdom is absolute or the reverse; and that not only the reverse of being absolutely certain, but the reverse of wisdom. In a moral point of view there is very much to be said in support of the opinion that the whole influence of society should be directed rather to keeping people from being paupers than to supporting them when they have become paupers. In a financial point of view we think this latter opinion is capable of proof, which, of course, can hardly be admitted to be the case as to morality.

Here comes to hand a little book, lately published, without name of author, which fell under our eyes by what is called chance,—but by directing attention to which, all godfatherless as it is, we do a service to the cause of the poor man. It is called "Contrasts,"—a title which is ill chosen, as in no way indicating the contents. It is, in fact, a temperate, instructed, cautious appeal to the rate-payers throughout the country to consider whether the enormous sums which are now paid in rates are not, to a great extent, squandered. The writer is admirably free from any exaggeration, bombast, or sentimental appeal. He gives chapter and verse for his opinions. He compares the effect of definite sums of money applied to the support and healing of the poor under the Poor Law, and in the great hospitals and institutions which are munificently supported by the endowments left by the piety of our ancestors, or of the subscribers, whether pious or ostentatious, of our day, on the one hand, with less pretentious charity on the other; and he certainly shows how much farther the widow's mite goes than the shekel of the Pharisee. Thus he draws attention to this most important question,—is not injustice done to the poorer rate-payer by the extravagant distribution of the money raised for the support of the poor? The question is one that cannot be blinked. The sooner it is fully grasped by the public intelligence the better for the future hopes of England.

Let us look, for a moment, at that stratum of society where, as we before said, our weak point as a people is to be found, in a little detail. The traveller who is hurrying from the unattractive streets of London (perhaps intending to study in his journey the new "Digest of the Statutes of the Rural Sanitary Authorities," in the table of contents and index of which he will look in vain for the word "Engineer"), and is beset, at the door of the station, by two shrill voices,—one of them asking him to buy a halfpenny newspaper, the other a halfpenny box of matches,—little thinks what has to be paid for out of those halfpence. We will say nothing of the first. It is a commercial speculation in the hands of the larger kind of capitalist. The second halfpenny represents the outcome of the combined labour of those who are not even small capitalists. They are,—to apply an old word in a new sense,—perfectly acephalous. What goes to make up the halfpenny of the acephalous manufacturer and salesman?

Children generally are employed in making the lucifer-match boxes. They are paid at the rate of 4d. a gross. Do our readers happen to remember how many go to a gross? Unless the famous purchase by Moses, in the immortal "Vicar of Wakefield," of the "gross of green spectacles," shall have led them to inquire, we venture to doubt their accuracy of knowledge. A gross is a dozen dozen, or 144. That is, the little manufacturer's labour is paid for at the rate of a penny for three dozen boxes; that is to say, at the rate of the *ninth part of a farthing* per box. It is not an extravagant rate; that is to say, if viewed from the side of the consumer,—our side. Nor is it too encouraging if regarded from that of the producer, the small acephalous manufacturer. Yet by hard work a clever child can earn at this work from 1s. to 1s. 6d. a week. Next has to be considered the more important capitalist who supplies the materials for the box. Then the matches which fill it have to be made. Here, again, come in labour and material; and here also comes in skill of a higher order,—that of the chemist. Some of the latest discoveries of science deal with the heteromorphic forms of the phosphorus that caps the matches. Last comes the distribution to the public. We cannot give all the details. It would be instructive to tabulate them. We know that out of the price of a book that costs 1s., 5d. goes to the distributors. The halfpenny match-box can hardly allow the net profit of five-sevenths of a halfpenny for the little retailer; and for the capitalist, of whom, as purchaser from the manufacturer, he is the agent. So it has happened that on the threat of a strike among these makers of boxes, which has resulted in an increase of their pay up to almost a quarter of a farthing per box, the increased expenditure, which would not in any way be thrown on the purchaser, by reason of the failure of our monetary system to take any cognisance of dealings so small, is thrown on the vendor. A child who could sell boxes enough to give him a profit of 1s. a week, must now sell an extra number. We give our readers the *data* on which to calculate *how* many more, in order to keep up that stable and satisfactory rate of income.

Another minor industry is told of by the same ignominious chronicler. It is that of the maker of skewers for dogs' meat. Who that pays dog-tax,—stamp and sign of eminent respectability as that expenditure is,—or who, not being a lover of dogs, has privately rejoiced at the diminution in the number of that species that may be traced to a fiscal cause, thought of the skewer matter? The price of dogs' meat itself is not high,—we cannot speak from personal experience of the present ruling market rate,—but out of every pennyworth of the aliment, the aliquot part that represents the cost of the skewer must require for its denomination a knowledge of decimal arithmetic hardly to be expected among the small merchants of whom we speak. We are wrong: we can give the data. The manufacturer of dogs'-meat skewers must be also a capitalist. He, or she, has to "find the wood." Finding wood, and finding labour, the gross return obtained by the small manufacturer is the 125th part of a penny. We have contrived to write it without the use of decimals. Taken in another way,—in the wholesale terms,—it is at the rate of eightpence per thousand, wood and all. At this rate, what is called life has been sustained by the dog's-meat skewer-maker, so that the disorganisation of the business by the falling off in the number of customers raised the question of the union or the grave, or at least the hope of a possible grave, from a charity not met with by the poor frail body, so long as, by the lingering within it of the chained immortal spirit, it was denied the advantage of becoming a palpably dangerous source of mischief.

Another female handicraft of similar magnitude has been improved away by the modern practice of selling hooks and eyes by the weight. The women who used to earn what is ironically called a livelihood by sewing hooks and eyes on cards for sale, are thus *démérités*. Then there are the women who do the needlework for umbrella-makers,—they receive tenpence for a dozen umbrella-covers. But this is superb; for it is only the labour that they find, not the alpaca or gingham,—so they obtain the whole five-sixths of a penny, without deduction, for making one umbrella. Let any lady who thinks this a remuneration in any way inadequate set to work to mend a seam of an inch or two long in an umbrella, and minute on her gold watch how much time it takes! Then there are hundreds of women who are employed by the penny toy-makers. The division of labour here has been carried to a detail which we dare not attempt to follow. The women who work in the cinder-yards can actually earn as much as tenpence per day in fine weather. But as they can earn nothing when it rains, Sundays and wet days must reduce their income to something like 2s. 6d. per week,—with the additional feature of total uncertainty when they will have a day's work and when a day's loss of income, entailing may be absence of aliment.

In these and similar small industries are occupied that numerous class of the honest poor who prefer semi-starvation to pauperism. The subject is not one thus briefly to be dismissed. But what a picture do not these few dry details give of the unobserved exercise of one of the noblest virtues of the citizen, if not of the man? There is something that the ancient philosophers call by very lofty names in the patient resolution that will rather earn a crust than accept a loaf.

We do not now speak of what are ordinarily called "the dangerous classes," of the Bedouins of our city life; those whose hand is lifted against any man who has an unguarded pocket. We have recently seen, in the walks sacred to the capitalist, how much skill, invention, observation, knowledge of the world, and cool courage, has been steadily employed to commit robbery on a large scale. No less is the "making" of many a good workman thrown away on the making of an adroit thief. Do not let us be too hard, even on him. If it be a virtue to die—slowly, or at once, rather than to beg—there is at least a word to be said on behalf of the child who finds it easier to steal than to beg. We are not condoning his fault, but yet, "who is his keeper?"

To this vast class which, by honest or dishonest means, strive to keep out of the poor-house, the ancient law would have held out just that degree of aid that would have enabled them to right themselves, and to become useful, instead of harmful, members of society. And it is not the fact that the public burden would be increased by preventive aid; on the contrary, it would be very largely diminished. The maintenance of two adult paupers in Kensington workhouse amounts to 12s. 2¼d. per week. The cost of four pauper children, in the Hanwell Asylum Schools, for maintenance and establishment charges, is 1*l.* 8s. 6d. per week. The dock-yard labourer, whose loss of work has thrown his family on the parish, earned 18s. per week, on which he kept them. But the cost to the nation, which forces them into the poor-house by refusing any preventive aid, is 2*l.* 0s. 8½d. per

week; and the 18s. was a fructifying outlay: some one or other was at least 36s. the better for it; the national wealth was increased to that extent. The outlay of the 40s. is not only an unproductive, but a demoralising outlay. The family is swamped in the morass of pauperism. Are not these questions worthy of very serious, patient, able investigation, even on the principle that the highest morality means the largest profit?

WINTER EXHIBITION AT THE DUDLEY GALLERY.

No scarcity seems to threaten that the supply of pictures will fall short of satisfying any reasonable call for them at this season, judging by what may be seen at present at the French Gallery and the Dudley Gallery. The nearly 400 "cabinet pictures in oil" that are to form part of the Egyptian Hall's attractions for a time are of similar character to former collections exhibited there, with the difference that the absence of some of its best supporters would be sure to occasion, added to no very great help from others who have formerly assisted so very much to establish the institution. There can be little fear of dearth, however general it might become otherwise, lessening so apparently illimitable a provision as that of such pictures as are wont to cover exhibition walls at all times of the year, since it has become the rarest of rare things to have to chronicle any great effort, leave alone commensurate success, on the part of British painters outside the Royal Academy (and not very often inside either!).

On the other hand, the opportunity of observing how clever and industrious they are, as a rule, obtains from Spring to Christmas. Such evidence as supply can put forth of demand would seem to justify a belief that pictures are included amongst our daily wants, and come under the category of common necessaries. It is quite to be wished that this should be the case, even by those who know it never can be; for taste is more often dominated by appetite than *vice versâ*, after all; and on dark days the beauty of the cream-jug is less an object of interest than the share of lacteal treasure it contains; and pretty things are not the first thought of when all things are dear alike.

There is nothing more remarkable to record of this score of scores of performances to which public attention is invited at the Dudley Gallery just now than the fact of there being so little that is remarkable. Although Mr. J. A. McNeill Whistler's admirers will be charmed again by his "Variations in Pink and Grey" (193), to the same degree, no doubt, as they have been by "Nocturns in Blue and Silver," and other variations, opinions of their real value will remain as wide apart as Cheyne-walk from Japan, with as little doubt.

Mr. A. Legros must be said to follow nature very conscientiously and earnestly. His study or sketch on "The Grand Canal, Venice" (135), is just the antithesis of what is but vague and vaporous indication of anything that anybody may choose it shall mean. The level of water and its colour, with the mist veiling the damp basement of buildings, that seem to shoot up like herbage from a marsh, to bloom into colour so soon as they may meet sunbeams, are more than suggested here.

It is a pity the law of evidence does not more frequently apply, or is not oftener made to apply, to nature's witnesses. If there were need it would be next to impossible to swear that a same number of girls, so plain, so homely, so ug—. Ugh! Well; thanks to Dorsetshire butter, or any other of the good and kind provisions, if Mr. Legros had depicted a formful of British girls, they would not,—could not,—have afforded such a show of ungainliness as his "École des Filles" (379); and yet, how thoroughly well each girl keeps her place with no scumble to show distance! This and Mr. Haywood Hardy's "Stricken Lioness" are the loudest pictures in the room,—if one is to listen.

"The Stricken Lioness" (66) is too obviously dead to leave room for question. Her head and paws are admirably painted; and Mr. Hardy will fight his way up to very high position. Mr. G. F. Watts, R.A., has been usually better represented than by his study of "Eve" (75), one of a series of designs for large pictures, as, apart from the exquisite modelling of the torso, it can scarcely be accepted for a good specimen. Mr. G. D. Leslie, A.R.A., has reproduced the principal figure of his pleasant classic composition that gained him more laurels than he showed, in the background of "The Fountain" (156). The figure is still very pretty, but seems to miss her surroundings, and, like Mr. D. W. Wynfield's damsel culling dahlias, "The Morning Task" (178), to want freshness and vivacity. Mr. H. Stacy Marks, A.R.A., besides sending some admirable wayside studies of landscape, contributes one of the best figure-pictures—a monk, "The Convent Drudge" (221), polishing the chapel plate, with a patient submission equalling the care he is taking over the job. Mr. J. E. Hodgson, A.R.A., never excelled the completeness of execution and apposite character that distinguish his Algerian group of "A Coral Merchant" (248) noisily expatiating on the superlative quality of his string of beads to a would-be purchaser, who does not mean to be sold if he can help it, and contrasts by his imperturbable decision, the demonstrative eagerness of the vendor. A young girl leaning within the doorway makes up the number of actors in this ordinary scene, which is extraordinarily well painted. We shall try to visit the Dudley Gallery again.

A SACRIFICE AND A WARNING.

Crace Calvert, the well-known chemist, is dead, and was buried on the 29th ult. He died of typhus fever, caught in Vienna, making another victim to the insanitary state of the capital city of Austria.

Mr. Crace Calvert of late improved the manufacture of carbolic acid in all its forms, to be used for purposes of disinfecting and preventing disease which might be caused or aggravated by dirt; and yet he dies by what has aptly been termed "the dirt fever."

Mr. Calvert had gone over to Vienna to introduce and spread the sale of his carbolic acid in its various forms—as a soap, as a fluid, as a crystal, and also as a powder. He believed firmly in its power to prevent disease; as, also, that, to a great extent, the fluid preparation might be taken as a cure for disease. Alas! it did not prevent nor cure in his case. The lesson to be learned from this great loss and sad case is, Do not put too much trust in disinfectants, as putrid cesspools, and stagnant, corrupted atmospheres, will kill in spite of disinfectants. A city with corrupting refuse about and beneath the houses is a city of death.

In 1863 we made some comments, from personal observations in Vienna, on the want of fresh air in the houses and other unhealthful conditions, and wrote thus:—

"There must be other deadly agencies in operation in Vienna if the annual death-rate officially reported be correct. In London, on an average of ten years, twenty-four persons out of every thousand die each year, and this is greatly in excess of some of the healthiest parts of England, where, as at Eastbourne *formerly*, for example, only fifteen persons out of every thousand, die each year. Even in districts of London, sixteen or eighteen in the thousand is the usual death-rate. Now, in Vienna an average of forty-nine persons out of every thousand die each year; so that if the population be taken at 580,000,—which is probably correct, 14,500 *persons die every year merely because they reside in Vienna instead of London*. Much of this frightful waste of life, and its accompanying misery to survivors might surely be prevented. Here is a noble work that wants doing. We recommend it to the attention of the Emperor. A commission of inquiry should at once be issued (not to-morrow, but to-day) to a certain number of enlightened, disinterested, and instructed men, including, if it could be arranged, two or three Englishmen who have given special attention to the subject. Causes being made evident, remedies could be pointed out, and weakness, misery, pauperism, crime, and death would be lessened, just as certainly as that good food, if taken, will nourish, and prussic acid, if taken, will kill. Would it not be well, O Emperor, that history should say: 'In the reign of Francis Joseph Charles, life was lengthened, and sorrow abridged in the city of Vienna?'"

If these words had reached the ears, and convinced the understanding, of those who had power, and so led to works of amelioration, thousands of lives and millions of money might have been saved. The amount lost during this Exhibition year alone, through the unhealthy state of the city, which has kept away visitors, and made the Exhibition a failure financially, is far greater than would have been expended in rendering the city fit for healthful existence.

EXTENSION OF THE METROPOLITAN AND ST. JOHN'S WOOD RAILWAY.

ALLEGED INJURY TO BUILDINGS FROM VIBRATION.

The Metropolitan and St. John's Wood Railway Company are immediately about to commence new works in connexion with laying down a double line of rails, and also to extend their line by constructing new branches from the Swiss Cottage to the Finchley-road Station of the Midland Company; also to the Hampstead Junction of the London and North-Western line, near the Edgeware-road; and likewise a new branch line to Kingsbury, where extensive workshops and engine-sheds are about to be erected by the Metropolitan Company. The powers to construct these new works were obtained in the last session of Parliament, the Parliamentary committees also giving the Metropolitan and St. John's Wood Company power to run goods trains on their line, which, under the 88th section of a former Act, they were prevented from doing. The company's proposals were strongly opposed, more especially that to run goods trains on the line, on the ground that valuable property in the neighbourhood, consisting of high-class houses, would be seriously injured by shaking and vibration. On this point there was a remarkable conflict of evidence before the Parliamentary committees, and the question whether on the one hand builders are not eagerly anxious to build over and immediately on the margin of railways, or, on the other hand, are absolutely deterred from doing so through fear of vibration, was brought prominently forward. The following extracts from the evidence given by the several witnesses examined for and against the proposal will be interesting to all persons connected with building operations, as well as railway construction generally. Vibration and injury to buildings in the immediate neighbourhood of railways was the main point under consideration during the whole of the inquiry.

Amongst the witnesses examined on behalf of the promoters of the Bill was Mr. J. S. Forbes, the managing director of the London, Chatham, and Dover Company, and also chairman of the Metropolitan District Railway. In answer to the question whether any injury arises to property or any serious inconvenience to the inhabitants by the vibration caused by railways, he replied in the negative, and then remarked,—"Vibration is pretty well understood. It is a very convenient thing to raise before committees, and a very convenient lever for compensation; but the practical view of it is this, that where you have railways in tunnel or in cutting, you always find people willing to build houses over the tunnel or by the side of the cutting. Within a very few yards of this building [House of Commons], the St. Stephen's Club is being actually built over the District Railway. We have disposed of a great deal of property in different parts of the suburbs of London, which has actually been built upon over the railway; and a great deal more where they build close up to the railway. Those who are familiar with Camden-town know that people have built there up to the very banks. There is nothing in it *except in these rooms*. The surveyors, when the Bill is passed, very soon settle the vibration value. Judging by experience, I have not found that there is any deterioration in the value of property by the proximity of the railway, but quite the contrary. The rents of the houses on the railway with which I am connected have been enormously increased since I have been connected with them. As I have stated, the St. Stephen's Club are building over the railway. We sold them the land. They were not satisfied with buying the land up to the edge of the tunnel, but they would insist upon having the land over the tunnel."* In answer to the question as to whether any special mode was adopted for counteracting vibrations, he said there was not, but added,—"We had some questions as to the foundations of Westminster Abbey, in the Metropolitan District Railway, and there were additional precautions taken with reference to that building. I think there

* They are building over the railway, and have actually covered over what was an open part of the railway with iron girders, which are to carry the superstructure of their club.

were more solid retaining-walls and inverts. When you are dealing with a building like Westminster Abbey, you cannot allow a shade of a shadow of a doubt, and you take precautions which in an ordinary building would be uncalled for." In continuation of his evidence, he said he had found in his own experience of the London, Chatham, and Dover Railway the increase of the value of property that took place by the vicinity of a railway. "We know that," he observed, "perfectly well by the rating returns, and by the enormous increase of new houses. All the way from the south bank of the Thames, whether you go from the Elephant and Castle side or from Victoria, you will find houses growing up in enormous quantities, as far as Sevenoaks." On being asked if he had found any deterioration in the value of property along the Metropolitan Railway and the Metropolitan District Railway in consequence of the railway, he replied,—"I give my own experience. I have lived in Philimore-gardens, Kensington, for ten years, and I wanted to get out of London, and I sold my house. I gave 3,000*l.* for it ten years ago, and when the Metropolitan District Railway opened, three years ago, I sold it for 6,000*l.*, and I think some neighbours of mine have done better still. I have had as much experience as most men in these matters, because I have been connected with most of the railways about London. These outcries as to vibration are stock complaints,—they are good levers for compensation. On the very edge of the cuttings at Paddington and Euston-square whole streets of houses have been built since the railway was made.

Mr. Myles Fenton, general manager of the Metropolitan Railway, said it was the fact that houses were constantly being built over their railway. The company had considerable plots of land adjoining the railway, and parties eagerly sought them, and actually built, not only over the railway itself, but also on the walls of the railway. He would not say that there might not be some vibration; but, as he told the committee, they had persons living over the railway, and persons building houses on the walls of the railway. He did not think they would be likely to build if they feared vibration. They had large houses in Cambridge-square, where people were living on the top of the railway,—houses worth from 400*l.* to 450*l.* a year. One of these houses was built absolutely over the railway.

Sir Edward Watkin, chairman of the Metropolitan Railway, gave similar evidence, stating that he did not find the vibration on the Metropolitan Railway was at all a source of annoyance to people. He had found that, notwithstanding all the objections raised upon the question of vibration, people were not unwilling to come and take houses along the line of the Metropolitan Railway; and he added, that it had opened up a new demand for property at higher prices. The Metropolitan Company proposed to take about 40 acres of land at Kingsbury, on which to build engine and carriage shops, and also residences for the workmen. He did not say it would improve the neighbourhood for nice houses, but he should still be delighted to buy the whole of the land within a mile of the place for 50 per cent. more than it was now worth. He would give 150*l.* an acre for it.

Mr. Edward Wilson, C.E., who had had the superintendence of the East London, Great Eastern, and Metropolitan Railways, said that in his experience of building, people did not so strongly object to living upon a railway. "They come to you as a rule," he said, "and when you get a railway opened, the builders come to it. The District Railway runs right in front of Somerset House, and I have never yet heard a complaint about it. Again, it passes close to the clock-tower of this House, and we have never heard of the clock losing a second of time or showing any effects from the vibration."

In opposition to the proposed works several architects, surveyors, and builders, as well as owners of property along the line were called. Their evidence was to the effect that the houses in the neighbourhood of the railway had already severely suffered from the vibration caused by the railway, and that in the event of goods trains being allowed to run, the property would be still further injured.

Mr. Phillips, builder, in his evidence stated that the walls of a house which he had erected in Alsop-place had cracked in consequence of the vibration caused by the railway, and that he had had to move his workmen in consequence of the shaking caused by the trains.

Mr. N. F. Dawe, architect, said that there were cracks in several of his houses, caused by the vibration of the railway, and several of his tenants had left. They complained that the vibration shook down the ornaments. He had intended laying out 30,000*l.* in building high-class houses on land which he had purchased from Lord Portman, but if goods trains were to be allowed to run on the line he should not do so.

Mr. James Blythe, builder, gave similar evidence. As a resident in the neighbourhood for seventeen years, he spoke to the injuries which the houses near the line had received from the vibration caused by the railway, which would be worse if goods trains were allowed to run. He wished to erect several houses in the neighbourhood, but should not do so until the decision on the Bill was given.

Mr. Alexander Peebles, district surveyor, also deposed to the injuries which the houses in the neighbourhood of the railway had sustained by vibration, illustrating the case of his own house, where, on the occasion of a friend dining with him one evening, the vibration caused by a train almost shook the fork out of his friend's hand.

Mr. Henry Legg, architect, who had erected Trinity Church, in the Finchley-road, which was situated over the railway, said in his evidence that the tower had not yet been built, and that the increased vibration caused by heavy goods trains passing along the line would render it unsafe to build the tower.

Mr. William Todd, architect and surveyor, stated that he had been professionally engaged upon several houses and a church which had been injured by the vibration on the railway. The church had sustained considerable structural damage by two of the columns of the nave arcade having split.

After a prolonged inquiry, extending over upwards of a fortnight, the Bill authorising the construction of the proposed works and the running of goods trains was sanctioned, with the proviso that no such trains shall be run between Baker-street and the Swiss Cottage between eleven o'clock at night and six o'clock in the morning.

We understand that the new works are intended to be carried forward with all possible speed, with the view of the junction with the London and North-Western and the Midland lines being opened at an early day. It is also stated that the Metropolitan Company will take over the line, and undertake the construction of the new works.

ANTIQUARIAN RESEARCHES.

THE greatest possible service is being rendered to our national archæology by the publication of the Roman inscriptions and sculptures discovered along the line of the great Roman Wall, to which repeated attention has been drawn by the *Builder*. The public as yet is so little aware of this event (for such it may be correctly termed), that any notice of the undertaking will, it is hoped, be welcome to all who are anxious to know something more of Roman Britain than can be learned from the common sources of information current under the name of general history. The work is being produced under the auspices of the Society of Antiquaries of Newcastle-upon-Tyne, by the man best qualified for the important task, the Rev. Dr. Bruce. Dr. Bruce's "Roman Wall" soon grew from octavo into quarto volume, and a third edition has been published; but the materials specially applicable to historical purposes were so extensive and so continually increasing that something was yet wanted; and thus the "Lapidarium Septentrionale"* is being printed to complete and make accessible these records so necessary for fully investigating the Roman period of the history of our country. An undertaking such as this, demanding not only mental and physical qualifications, but also serious pecuniary means, could not be entered upon without care and prudence; but where earnestness is combined with ability and conscientiousness, it is seldom that sympathy and aid are withheld; and the late Duke of Northumberland, Mr. John Clayton, and the Society of Antiquaries of Newcastle cordially and effectively supported Dr. Bruce, who, under their assistance, is now bringing the noble volume towards a close.

* "Lapidarium Septentrionale; or, a Description of the Monuments of Roman Rule in the North of England." Folio; 1870-3. Newcastle-upon-Tyne.

Horsley and Hodgson had done much to prepare the way; but the "Britannia Romana" and the "History of Northumberland" are scarce and very costly works; and while the latter is without engravings of the inscriptions, the former entirely fails to represent their true character; and the sketches of the sculptures are almost burlesquely unlike the originals. Such monuments demand the most careful and accurate treatment. Scrupulous fidelity is imperative; for very often the correct reading of an inscription may depend upon a letter or a ligature; and the artist, if not trained for the purpose, should always be assisted by a practised eye, that he may never sacrifice truth to artistic effect; or, in the case of mutilated or imperfect inscriptions, add a stroke from conjecture. It is for the antiquary to restore, according to the best of his judgment, which is to be tested by the faithful engraving. To the inscriptions from the long line of the Wall itself, and of the stations to the north and south of it, Dr. Bruce has added the military diplomas of Trajan and Hadrian, the earliest documents yet discovered in respect to the Roman forces in Britain in the time of those emperors: these have been prepared in *fac simile* under the superintendence of Mr. Franks. The enamelled bronze cup, with names of some of the stations on the line of the Wall, discovered at Rudge, in Wiltshire, is introduced in a well-engraved plate, and the superb silver *lanx*, richly adorned with mythological subjects, which was discovered at Corbridge, has never before been so well represented and discussed.

The general arrangement of the "Lapidarium" is as follows:—Altars and slabs dedicated to deities; tablets erected to emperors; stones inscribed with the names of legions, alæ, cohorts, and centuries. Then follow sculptured stones without inscriptions, with other objects, of whatever material they may be made; all arranged under the localities where they were discovered. It would be utterly beyond the bounds of a notice such as this is to describe any of these valuable monuments so as to render adequate justice to their merits; but to convey some notion of the scheme of the work a very abridged description of *Procolitia*, the seventh station according to the *Notitia*, may be extracted,—not that it is particularly important; but because Mr. Clayton, to whom the district fortunately belongs, is at the present moment making excavations there which have yielded several new inscriptions, to which reference will probably be soon made in the *Builder*.

The site of this station, now called Carrawburgh, is open and exposed to the weather and winds from every quarter. It is a little to the south of the great Wall, and contains an area of about three acres and a half. Here the *Notitia* places the first cohort of the Batavi:—*Tribunus Cohortis Primæ Batavorum Procolitia*. Two inscriptions discovered upon the spot confirm the *Notitia*. One is upon an altar to Fortune, by M. Flaccinius Marcellus, Prefect of the First Cohort of the Batavi; the other records the erection of some building by the same cohort in the time of the Emperor Maximinus, when Perpetuus and Cornelianus were consuls. The Batavi are mentioned by Tacitus as being in Britain under the command of their own chiefs; and the same historian describes them, together with the Tringri, as materially contributing to secure to Agricola the victory at the Grampian Hills. They are also recorded upon Hadrian's diploma as being then in Britain. Here we find them in the time of Maximinus; and the *Notitia*, as before observed, shows where the first cohort was quartered when it was compiled at a later period. Another inscription proves that the first cohort of the Aquitani was, at some period, stationed here, probably in the time of Hadrian, when, from one of his diplomas, we know it was in Britain, and under Aulus Platorius Nepos, whose name is associated with that at Carrawburgh. This station, like others, is fertile in what are called centurial stones, recording work done in companies under centurions, as the century of Cæcilius Proculus, of the fifth cohort; the century of Gellius Philippus, &c. Sometimes the measurement of the work is given, as "the century of Florinus, twenty-two paces." On some occasion, a further inscription informs us, the sixth legion, or a portion of it, was present, having been moved from its permanent quarters at York. An altar, erected by Tranquilla Severa for herself and family, has the dedication headed by the letters D. M. D. Dr. McCaul proposes to expand them to *Deabus Matribus Domesticis*; Dr. Bruce reads them as

Deæ Matri Deum, observing that it is not usual to indicate the names of obscure local deities by single letters. On another inscription (of a class common to the region of the wall), which has been lost, Dr. Bruce remarks that "the dedication may be DEO VETERI, "to the ancient god," a dedication not less common than DEO VITIRI. The sculptures from this station represent Minerva and a portion of another figure with her; and Neptune, or a river god; on which Dr. Bruce's remarks will be read with interest.

A work so important as the "Lapidarium Septentrionale" should be in every public library; its historical value cannot be estimated too highly; and, no doubt, from the limited number printed, it will soon become unattainable at its present price. C. ROACH SMITH.

STATISTICS OF CAMBERWELL.

THE opening of the new vestry-hall at Camberwell, last week, was the means of bringing before the public a number of highly interesting statistics respecting the enormous expansion of that parish, and which show the immense amount of building which must have been continuously going forward in the district for more than half a century past. The area of the parish of Camberwell is unusually large, occupying 4,342 acres, and extending from the Crystal Palace to the Walworth-gate, and to the Green Man-gate, in the Old Kent-road, and thence to New-cross. Its great increase within the last century is proved by the fact that whilst in the year 1773 the population was under 3,000, it is now, in 1873, upwards of 120,000. The number of assessments in 1773 was 517, and the rateable value of the parish, 13,233*l.*; whilst, in 1873, the number of assessments was 21,110,—an increase of 20,593,—and the rateable value, 575,599*l.*, or an increase of 502,366*l.* During the half-century between 1821 and 1871, when the last census was taken, the increase was marked and continuously rapid, the population in 1821 being 17,867, whilst in 1871 it was 111,306, or an increase of 522·96 per cent. The statistics also show that the relative increase of population in the neighbouring parishes has not been half so great within the same period as that of Camberwell, for we find that the increase in Lambeth is from 57,638 to 208,342 (no doubt a very large expansion), or an increase of 261·46 per cent.; Newington, from 33,047 to 88,722, or 168·47 per cent.; St. George the Martyr, from 36,368 to 56,077, or 54·19 per cent.; and Bermondsey, from 25,235 to 80,429, or 218·72 per cent.; thus showing an enormous per cent. in favour of Camberwell. The increase also in the population during the last two years between 1871 and 1873, being now 120,000 as against 111,000 in the former year, showing an increase in the population at the rate of 4,500 (or nearly 5 per cent.) in each year. The statistics again show that in the two last decades, between 1851 and 1871, the population more than doubled itself, the number of inhabitants in the first-named year being 54,667, whilst in 1871, as we have already stated, they numbered 111,000. Within the same period the number of houses built was 8,343, the number in 1851 being 9,412, as against 17,755 in 1871, or an increase of 88¼ per cent. At the present time there are 4 miles of main drainage within the parish, 50 miles of sewers, and 45 miles of public roadway, in addition to a large number of streets made by private owners, which have been taken over by the parish. In the several streets and thoroughfares there are 2,300 lamps, which are constantly being added to. Building is still going forward at a rapid rate in the parish, several large estates having been laid out in streets and now being built upon. These include the Denmark-hill estate, formerly the well-known Denmark-hill grammar-school; also a large area of land in Peckham, containing several acres, and well known for several years past as a cricket-field. These two estates alone are laid out for the erection of from 800 to 1,000 houses, and a considerable number has already been built, whilst others are at present in progress. Notwithstanding this remarkable expansion of the population it was stated incidentally last week, during the proceedings in connexion with the opening of the hall,* that Camberwell was not nearly built over, and that there were yet hundreds of acres of land to be had at reasonable prices, and plenty of room for houses to be built.

* A view and plan of the Hall will be found in our volume for 1872, pp. 286, 287. Mr. Power is the architect; Mr. King, the builder.

THE CITY ARCHITECT AND EXTRA PROFESSIONAL SERVICES.

AT the meeting of the corporation last week the Officers' and Clerks' Committee brought up a report recommending that Mr. Horace Jones, the architect and surveyor, be paid the sum of 5,000*l.* for extra services in connexion with certain completed works, which were not contemplated by the terms of his appointment. The report stated that had the outside profession been employed, the professional fees would have been:—For the Meat Market, 14,000*l.*; restoration of Guildhall, 2,300*l.*; Foreign Cattle Market, 5,600*l.*; new library and museum, 2,500*l.*,—showing that a saving of 21,000*l.* had been effected after deducting the expense of the necessary additional draughtsmen. The report further stated that in the judgment of the committee it was both just and right to recognise the special services of the architect, as they believed the works he had carried out did honour to the corporation, and were highly creditable to his professional talent. After some discussion, it was resolved that the report of the committee be printed and circulated, and its consideration deferred.

SIR EDWIN LANDSEER AND ANIMAL LIFE.

AMIDST the perplexities and disappointments of life, it is sometimes not a little consoling to discover, by accident or otherwise, that you have been, after all, to some extent right. A crude theory, not a little doubtful perhaps to not a few, turns out true, and its truth comes to be verified by something which no one can dispute. We have, time after time, urged that the *hand* of the artist is a prime necessity to enable him to interpret the inner *thought* that is in him. This, when plainly stated, seems almost a truism, needing no sort of proof, yet, as we know, the practice of the time in which we live is not a little adverse to it in very many sorts of ways. Art *manufacture*, or the production of art by a number of more or less able hands, working on the art object in succession, and taking it up one after another, is the method of art production now almost everywhere in vogue. It is in *painting* that the principal exception lies. A painting in the rooms of the Royal Academy may fairly be instanced as an example of a work of fine art,—by the *hand* as well as the *mind*,—of the artist exhibiting it. We could say not a little on this generalising theme. Our thoughts have again been drawn powerfully to it by a long examination of the series of etchings and engravings and lithographs of the admirable works of the late great animal-painter, Sir Edwin Landseer. Some 300 of these are now in the rooms of the Messrs. Graves, the printsellers, of Pall-mall, and in these works may be seen the sort of mastery which the executive artist and artist workman in Sir E. Landseer had over the forms of animal life which he drew, and indeed made his own. *Animal* life was the phase of nature which Landseer delighted in. Dogs and horses he never seemed to be tired of looking at and making notes of, and drawing and painting. It is on some few of these, and on the method of their rendering, and on the special work of their copyists and engravers, that we would venture a word or two.

In the first place, we would almost recommend the student who would really wish to profit by the study of these works of Landseer's to pay a visit, or many visits, to the animal collection at the Zoological Gardens, and to look well at the animal forms and movements therein to be seen. There are not a few drawbacks, it is true, but it will be found to be far better than not seeing at all. It was the actualities of animal existence, and the living ways of animals, that the painter loved to note and portray; so that the more the student looks at and knows the forms and ways of animals the better he will appreciate the imitative work, wonderful as it is sometimes, of the painter and draughtsman. Of course to those who can see into the life, if but a little, of the creatures themselves in their state of nature, it will be needless to say to him that to find the real nature and wonder of the animal existence and ways of life we must needs go to the animals and to their haunts. They will not come to us, except on compulsion, and by dint of more or less of *taming* and consequent loss of natural expression. To those who cannot do this, then, a zoological collection or an animal "show" is an enormous help, and can hardly be too much prized, or too often visited. It is well to pause and dwell for a moment on the importance of the distinction between the *wild* and the *tame* or domesticated animal. Landseer, be it observed, and the thought is somewhat new, studied animal life under both aspects; but, perhaps, unfortunately the most popular by far of his works, both paintings and their engraved copies, were those subjects in which the animal forms and groupings were of domestic and petted animals, and the groupings and composition invented and artificial. This is well worth note, and we should be disposed broadly to divide his works into two main divisions or classes;—those in which the animals represented are in their wild and native state, and those in which they are domesticated, and, so to phrase it, postured and groomed. This broad distinction, which to many may seem a slight one, but in reality is not, is well and significantly represented and typified in many of these engravings and etchings. One, and probably to many familiar, illustration of this distinction between animals, and their ways in a wild, as contrasted with a tame state, will be found in the "Otter and Salmon," engraved by J. R. Jackson. It must have been a very clever and slippery salmon which could have escaped from the savage jaws of this supple brute. No tamed and obedient otter could look like this one, and the painter must have studied well, and looked often and long at "otters," to have caught the wild expression as here to be seen even through an engraving on steel, not the best of mediums, by the way, through which to see into otter existence. Quite a study for a stone carver. No conventionality needed, and certainly no effort of invention could see anything more than Landseer could but see in the animal itself in its fish-capturing ways!

Other and remarkable examples of wild animal existence will be found in a series of small round etchings of deer and dogs in the Highlands. These little sketches seem to us to be thoroughly characteristic, and to have come from the heart of the painter. One of them, called "The Watch-tower on the Hill-side," takes fairly to the place itself. The deer on the look out for danger from the side of a desolate hill. Another subject, "Doomed, but who will find him?" Another named, "Off. They could na but catch the wind." Such things must needs be *seen* under difficulties, too, as Turner looked at snow-storms at sea: they cannot, with all man's powers, be invented. The "Dead Deer," the "Eagle," and "Missed" are other subjects worth all the study that can be bestowed on them; for if there are those who cannot go and *see* the realities themselves, then they may, through the keen eye and ready hand of this great animal-painter, see them almost as well, and certainly more safely and comfortably, in these masterly drawings. The three dogs in full chase, in the lower left-hand corner of the frame, could not be surpassed. And while in these small drawings, so much fuller of *life*,—animal life,—to our minds than the larger engravings, and the more showy and popular subjects,—you see less of the *means* and more of the subject,—we would point also to a series of small photographs taken from the walls of some Highland castle, whereon Sir E. Landseer drew roughly some deer and other subjects with singular force and life-like truth. The watchful animal in the centre panel is wonderful, in truth of form, as are the indications of the surrounding country. We name these small subjects because they are a little likely to be missed, being eclipsed by the more showy and larger engraved works around them; but they were evidently executed for the mere love of the work, and at moments when the painter was in the true humour for it. All thanks to him for thus leaving his *hand-writing* for us to read, each as we may and can. It is truly unfortunate that, as Mr. Graves informed us, these small photographs are now the *sole record* of the work done by Landseer in this northern castle, for it has suffered since by fire, and these clever paintings were destroyed. A something truly unhappy; for these light and sketchy works of love, and power of rapid hand, are always better in many ways, and more powerful, than the more painstaking and finished works of the studio. There are no "models" of any kind to go by,—the subjects exist in the mind, and find outward expression at the fingers' points. Another little work may here be specially named,—a small pet spaniel, most cleverly etched by the painter himself at Buckingham Palace. It must have been greatly admired, for it is certainly a true and life-like portrait. It is most wonderfully executed with but a few strokes of the needle.

We could thus go on, and particularise not a few more of these productions of Landseer's, and to do full justice to them would require a volume; but we can but indicate the way to look at them, and offer a hint here and there, with a tribute of admiration. It seems a pity that they are not arranged in the order of their date, or subject, or in some way which would indicate the special faculty of the artist at the time he did the work.

We have spoken of the Zoological Gardens, and would fain believe that Landseer must have studied well the familiarly-known white bears there, and their singular ways. They never seem to have forgotten their life, short as it was in the frozen North, and the painter must have marked them right well. At all events, he has, as may be seen in the engraving "Man proposes and God disposes," taken full advantage of the knowledge thus got at. It may not be quite so strange as the life of the Polar bear on his own ice-flow, but it is very striking and admirably suggestive in its way. The engraving is by Thomas Landseer. May we not here ask, is not the life of the painter generally rather too much of a home-spun existence? Polar bears can scarcely be made to go through the antics which Landseer's "dogs" so good-naturedly did,—to smoke pipes, and take tea, and preside at social meetings,—and yet, too, all the time retain their savage and solitary isolation, and indifference to the genteel conventionalities of modern human existence. We really know of nothing more striking than to gaze at the *new* animals when they first make their appearance at the Zoological Society's Gardens, and to note, which we have often and often done, the ways and strange look of the creatures in their new and unaccustomed narrow cages, so totally different from the place they came from. After a while this disappears; they get used to the place, and to the good-natured importunities of visitors; they get tame, and, to a certain extent, but not altogether, the savage and isolated nature is subdued. Is this a gain or a loss? What did Landseer think?

We cannot wind up these few thoughts without noticing, as showing how flexible was the hand of Landseer, the two "Black Dogs." These capitally-drawn animals were produced by the painter with the point of a charred stick, in a few seconds. It would be difficult to find anywhere, or by any master, a finer drawing. It shows what can be done when you know well how to do it,—with a clear head, a good eye, and an obedient and flexible hand. It is not in the catalogue of his engraved works. It leads back to our first thoughts on the power of hand of the artist-workman, and to the way in which this great painter of animals rendered them, and to the loss of artistic power, and force, and expression, if but for a moment he abandons to others this gigantic executive instrument. By no sort of possibility could any one, however able, have helped the painter with this drawing. It is all his own work, and nothing else. It shows how he saw the dog-nature, and how he could communicate to others what he himself saw so vividly, and loved so well. It is satisfactory to know that the Royal Academy, of which Landseer was so distinguished a member, is to have an exhibition of his paintings. We trust they will be classified, and, more than all, that the exhibition will include, if possible some of his *oil sketches*, and "first thoughts" for pictures. It is in the lighter and more rapid work of such a master as Landseer that the true power lies. The working artist then is visible, and the rapid and fleeting moments of the wild life of these wonderful creatures are best caught and perpetuated.

ARCHITECTS' DIFFICULTIES.

MANCHESTER SOCIETY OF ARCHITECTS.

At the last general meeting of this Society, the president, Mr. J. Murgatroyd, delivered the following address:—

The peculiar position in which an architect is placed, by his relations to his client and the builder,—the desire to achieve or maintain a reputation,—and the fact that his works are not for the cabinets of the few, but are exposed to the view and the criticism of the public,—present many difficulties, the surmounting or obviating of which forms often no mean task. Among those which at the present time force themselves most prominently on our notice are, firstly, the difficulty of getting our works executed in a reasonable amount of time; and secondly, that of securing what we consider the proper quality of materials and workmanship. The former is doubtless, to a very considerable extent, caused by the fact that the high wages earned, and the consequently short time worked by the operatives, have told upon production more rapidly than the laws of supply and demand have had time to balance by bringing a sufficient extra number of hands into the market. There are but few branches of the building trade into which any appreciable number of new hands can be imported from other and less highly remunerated callings, and I am of opinion that it is mainly to the rising generation that we must look for any alleviation of our wants in this respect. The increasing use of stone, as a material for facing our buildings, has thus received a severe check, much to be regretted no doubt; for magnificence in building and the use of costly material go hand in hand.

Apart from the great cost of working stone by hand labour (and no other method can produce other than mechanical-looking results), we must all have frequently regretted the delay caused by the non-appearance of frequently-promised and long-expected blocks of stone, the scouring of quarries for them, and the admission ultimately of a material of a different texture or of a colour varying from its neighbour,—no small drawback in this smoky atmosphere of ours,—the cause here being, I presume, that quarrymen find they can obtain better remuneration by working at piecework in blasting limestone for use at iron-smelting works, or in mining, or other occupations of a kindred nature to quarrying, but where the rough-and-ready process fills their pockets better than the care and judgment required for our purposes.

Our only or almost only other substitute for stone, superior brick, finds us in almost the same difficulty. Instead of brick-makers,—or, in their place, companies possessed of capital,—taking up the processes of brickmaking, and by machinery and the use of Hoffmann's or other improved kilns, securing the effectual prosecution of brick making and burning all the year round, independently of the weather and of brickmakers' unions, while obtaining at the same time a fair return on their capital, the manufacture is still mainly carried on in a primitive manner. Thus we have to use a material which one year may be bad and another good, according as the weather has been unfavourable or the reverse, and at all times one in which the endeavour to use too small a quantity of that now expensive fuel, coal, results in the production of bricks of so soft a nature and so irregular a shape that we are compelled to use more ponderous masses to carry a certain weight than ought to be the case.

As regards iron, the reports we hear from the iron and coal districts show that so long as the means of living can be procured by a small amount of labour, so long shall we suffer from a dearth of that metal and delay in procuring it, and that we may have again to revert to the use of those materials of which it was so satisfactorily and increasingly taking the place.

In devising new modes of construction, we architects are at a disadvantage under which, I think, no other profession suffers, in introducing a novelty into its practice. We have not only to deal with security to life and limb, but with that very sensible barometer—the pockets of our clients,—and while every advantage is theirs, the reverse falls on us most unmercifully. I do not, therefore, see any immediate channel of escape from the class of difficulty to which I have alluded, so far as first-class buildings and those to sustain heavy weights are concerned; but for others, such as cottages, villas, and other light buildings, where a return on the outlay is of primary consideration, there is one which hitherto has met with but little favour in this locality. I allude to the use of cement, more particularly to cement-concrete. We have all the materials cheap and at hand. Broken stone, rubbish from stone quarries, &c., could be procured in any quantity, and, with lime, clay, and coal within easy reach, there is no reason why in this district the manufacture of cement on a large scale should not be pursued. For suitable kinds of buildings, I say cement-concrete might successfully be used for walls, floors, and roofs, with the advantage of securing greater rapidity of building, sufficient durability, the use of less experienced labour, greater certainty of quality, and good resistance to the weather.

There is, no doubt, a great prejudice in the profession against the use of cement, except in place of mortar, but this, I think, is because it has generally been used as a sham; but the sooner we recognise its value as a building material, and learn how to treat it as such, the better. It is not by ignoring the use of a new material, or the novel application of an old one, that engineering has separated herself from architecture by such giant strides. Where common sense, guided by the results of scientific investigations, points to the proper use of that which we have hitherto disregarded, we ought not to be slow to follow her indications, bearing in mind that what we do be done well and sufficiently.

Turning now to the other branch of this subject—that of the quality of materials and workmanship—we all know and regret the difficulty of procuring these of the proper standard, and it may be interesting to discover the reason why. I am not sure that the builders are altogether in fault. The modern system of contracting and keen competition have, no doubt, much to do with it. The builder, in the proper interpretation of the term, hardly exists: he has become a contractor, not one who understands construction, and whose opinion may be sought on points of actual experience and the knowledge of material, such as were the builders of a quarter of a century ago, but one who undertakes the execution of work by others, not chosen for their ability to do it, but by reason of the price they will do it for.

But are architects themselves free from blame? Do not many occupy their time of study by attention to drawing, to the exclusion of acquiring a sound knowledge of construction and materials? I am also obliged to come to the conclusion that the habit of designing too ambitiously for the funds at their disposal has done much to foster the difficulty I have alluded to. It is, no doubt, by no means easy for an architect to resist the moral pressure often put on him by his client or committees, who urge the small cost of other buildings, or the ability of other architects, under circumstances which may not be fairly analogous to the case in hand; and in competitions we well know how apt a committee is to be misled by the specious promises of competitors. How often the fear of losing a commission, or the hope of gaining one, leads an architect to a too favourable view of his position,—all ending in his showing on paper that which he may find it impossible to carry out well and thoroughly. Then comes the reduction of every element of strength and solidity to a point verging on instability, and the searching out of those who will undertake the work at the least possible cost—men, it may be, inexperienced, or of little capital, who catch at straws like the drowning man—those who undertake work at ruinous prices in the hope of clearing themselves by a good bill of extras. Thus are the men of some reputation in their calling, who have an honest intention of doing properly what they undertake to do, but who cannot do so without that which ought not to be begrudged them—a fair profit—elbowed out of the way.

Thanks to the existence of this society, many of the fears that I have attempted to depict no longer exist for the architect, or at least they are, to a very considerable extent, reduced by the better feeling that has sprung up amongst us since the society came into existence; and I think it will be very much to our benefit, and to the real benefit of those who honour us with their confidence, if we set our faces resolutely against this letting of our work at any price. But to do this, some time must be devoted to acquiring that which is too often ignored—a knowledge of the value of materials and labour. Nor must we be unmindful that it will be also to our advantage that the builders of the future do not degenerate into mere *entrepreneurs*, without a knowledge of building at all as a science. I cannot, therefore, look upon the efforts which some of your body have been for some time making towards the technical education of the workmen, by means of the Building Trades' Institute, otherwise than with strong hopes of success.

But why should we stop here? Can we not look a little nearer home, and do something for those who are to succeed us as architects? I have often desired to place within the reach of architects' pupils and assistants some of those advantages which lie within the reach of their brethren in London; some means of gaining a knowledge of those matters appertaining to our profession which are not to be learned in the busy time of office hours, and that in a more systematic manner than mere individual, undirected, and often misguided research can afford. It is well known to all of us, that the office is

rather the place for the student to obtain a knowledge of the method of carrying on the *business* of an architect than for studying *architecture*; indeed, the former alone would occupy all, and more than all, of the time usually devoted to an apprenticeship. Are we not constantly grieved at seeing the productions, and the illustrations of productions, of some who imagine that, by "serving their time" in an architect's office, they have earned the right to assume the title of architect? How their efforts show a total ignorance of architecture as evidenced by its history and the knowledge of styles? A total inappreciation of proper harmony of proportion and balance of parts? An incapacity to perceive that features adopted *ad captandum* from one and another period of architecture are totally unfit and incongruous when brought together? Most disastrous, in my opinion, is the striving after prettiness, and the constant and laboured variety and exuberance of meaningless excrescences, to the total destruction of that repose which should characterise that which, by its very material, shows that it is intended to remain where it is placed for at least a generation.

Can we not, I ask, do something more than we have done to counteract this tendency? We have, it is true, published a list of books which it is desirable the student should make himself acquainted with, and pointed out where many are to be found for his free use. We have also established a prize to be competed for by pupils in Manchester offices; but knowing that study, to be of value, must be pursued systematically and out of office hours, would it be impracticable to establish for our pupils some institute, such as the workmen have done for themselves,—some evening classes where, for instance, figure drawing, the designing of ornament, some knowledge of building construction and building mathematics, some hints of an æsthetic tendency, could be imparted? Our School of Art does not offer the special education I would wish to have taught, and the difficulty of procuring capable instructors is, I am aware, very great, but I think not insuperable. I have often heard a valued friend of mine relate his experience, in time gone by, in such a school in London where sound maxims were gradually inculcated; and I, for one, should not only rejoice in seeing something of the same kind established here, but would willingly devote some time to that end if adequately assisted by those among us who have the same object at heart.

A few more words and I think I shall have trespassed sufficiently,—perhaps more than enough,—upon your indulgence.

It must be admitted that the street improvements that are, and have been, for some time in progress in Manchester, will not only be beneficial in affording more scope for traffic, and in introducing light and air into many hitherto insalubrious neighbourhoods, but will also afford the means of adding much to the magnificence of the city. It is much to be regretted, however, that in some instance, such as in what is practically a new street—Deansgate,—the corporation have not insisted on enforcing some of the powers which even their, at present, curious medley of building regulations confer upon them. An essential feature in street architecture is the proper accentuation of the angles of the thoroughfares, avoiding, however, the monotony likely to arise from an everlasting *rounding* of the corners; yet here we see fine angles spoiled by the erection of low, or comparatively low, buildings faced with stone, above which, no doubt, will tower the return brick walls of other buildings. It would be difficult to imagine anything more destructive to architectural effect, or less likely to redound to the credit or ultimate pecuniary advantage of the proprietor, than such a treatment. I do hope that if the rebuilding of any of these angle blocks fall into the hands of any member of our body, he will do his best to impress on his client the desirableness of accentuating the angle.

The competition question has in Manchester had another phase recently added to its already unsatisfactory character. The result of the Victoria Market competition, so far as known, is not likely to give confidence to architects in any future municipal competition. It is not, however, to the cruel disappointment caused by the reversal of the award of the premiums that I would draw your attention, but rather to the conditions of the competition itself. I am well aware that suggestions on the management of a competition emanating from architects themselves, though they might naturally be expected to have a little knowledge of the subject, generally share the fate said to attach to advice given unsought; and yet I think I may challenge any one to produce a scheme fairer for all parties than the "Suggestions on the Management of Competitions," published some time ago by this society. While, however, I had the pleasure of acting as your honorary secretary, I generally found myself too late to introduce it to the notice of a committee seeking designs, in competition, since the first intimation of their intention was usually conveyed to me by their advertisement. In the townhall competition our views were set before the city council, and some of our suggestions were adopted; but it was no suggestion of ours that the council should be at liberty to adopt any features they chose from any of the designs. This clause has, as you are aware, been used as a precedent for the same condition in the markets competition; but I believe the cases are not analogous, for in the latter a general competition was invited, while in the former the clause was introduced, if I remember correctly, into the second competition, when eight architects competed, each receiving three hundred guineas for his drawings. Then to require each competitor to design extensive frontages to the remainder of the plot not occupied by the market itself seems to me useless, unless it be intended to compel each person building thereon to adhere to such design. Should the successful competitor, then, whose premium is swamped in his commission on the outlay on the market only, be unremunerated for designing these other frontages, and submit to his ideas being appropriated by others?

The making a charge of one guinea to architects for the information that should decide them whether the competition be within their scope, was in this instance made, I am given to understand, under some misapprehension. As to the adjudication, not only in this but in any competition, when we take into consideration the number of years of study—and close study, too,—that must be devoted to the art and science of architecture before any one can properly "read" a set of designs, we must come to the conclusion that no ordinary observers can properly cope with the task, and that a report by a competent member of the profession should in all cases be laid before the ultimate judges. And here, again, a difficulty stares us in the face. What if a design equal to one of the most charming of Sir C. Barry's Italian elevations, and distinguished by his most painstaking care in symmetry and elegance of plan, were laid before an adviser of "acrobatic Gothic" tendencies? What chance would there be for the designer? There can be only two modes of avoiding this position. Either the committee must undertake at first that which they have to do at some period—decide on the style to be adopted,—or decide on the professional adviser whom they will consult, and this before announcing the particulars of the competition. Those who will bestow labour and skill on their drawings, without some such guarantees as I have indicated that they will at least receive some consideration, should surely not cavil at the results.

ST. STEPHEN'S, VIENNA.

THE Cathedral Church of St. Stephen, Vienna, is one of those buildings which have been looked upon as representatives of the architecture of the various countries in which they are found: it is pre-eminently *the church* of the Austrian dominions, just as Cologne is pre-eminently *the* church of Rhenish Germany, and although St. Stephen's cannot be compared in point of design or dimensions with its Rhenish rival, yet St. Stephen's, Vienna, has one point about it which makes it more interesting in an archæological view than the cathedral at Cologne, and that point is the fact that St. Stephen's is a complete embodiment of German architecture,—a building so intensely national, so excessively German, that it could never have been built in any other country in Europe; and even more than this, its minutest details partake so strongly of all the beauties, and we may add all the defects of German Gothic, that not the slightest foreign influence is perceptible in any single feature of the building. In fact, St. Stephen's, Vienna, is to German architecture what Salisbury Cathedral is to English architecture. Do not let it be supposed that we wish it to be understood that St. Stephen's, Vienna, is the *finest* example of German architecture, or that Salisbury Cathedral is the *finest* example of English Gothic: far from it, as both these churches in a most remarkable way illustrate the defects of the styles of which they are examples; but as *examples* of their styles, they cannot be surpassed, and are therefore immensely valuable to those students who wish by the study of Gothic architecture to arrive at the principles which actuated the ancient builders.

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rather the place for the student to obtain a knowledge of the method of carrying on the *business* of an architect than for studying *architecture*; indeed, the former alone would occupy all, and more than all, of the time usually devoted to an apprenticeship. Are we not constantly grieved at seeing the productions, and the illustrations of productions, of some who imagine that, by "serving their time" in an architect's office, they have earned the right to assume the title of architect? How their efforts show a total ignorance of architecture as evidenced by its history and the knowledge of styles? A total inappreciation of proper harmony of proportion and balance of parts? An incapacity to perceive that features adopted *ad captandum* from one and another period of architecture are totally unfit and incongruous when brought together? Most disastrous, in my opinion, is the striving after prettiness, and the constant and laboured variety and exuberance of meaningless excrescences, to the total destruction of that repose which should characterise that which, by its very material, shows that it is intended to remain where it is placed for at least a generation.

Can we not, I ask, do something more than we have done to counteract this tendency? We have, it is true, published a list of books which it is desirable the student should make himself acquainted with, and pointed out where many are to be found for his free use. We have also established a prize to be competed for by pupils in Manchester offices; but knowing that study, to be of value, must be pursued systematically and out of office hours, would it be impracticable to establish for our pupils some institute, such as the workmen have done for themselves,—some evening classes where, for instance, figure drawing, the designing of ornament, some knowledge of building construction and building mathematics, some hints of an æsthetic tendency, could be imparted? Our School of Art does not offer the special education I would wish to have taught, and the difficulty of procuring capable instructors is, I am aware, very great, but I think not insuperable. I have often heard a valued friend of mine relate his experience, in time gone by, in such a school in London where sound maxims were gradually inculcated; and I, for one, should not only rejoice in seeing something of the same kind established here, but would willingly devote some time to that end if adequately assisted by those among us who have the same object at heart.

A few more words and I think I shall have trespassed sufficiently,—perhaps more than enough,—upon your indulgence.

It must be admitted that the street improvements that are, and have been, for some time in progress in Manchester, will not only be beneficial in affording more scope for traffic, and in introducing light and air into many hitherto insalubrious neighbourhoods, but will also afford the means of adding much to the magnificence of the city. It is much to be regretted, however, that in some instance, such as in what is practically a new street—Deansgate,—the corporation have not insisted on enforcing some of the powers which even their, at present, curious medley of building regulations confer upon them. An essential feature in street architecture is the proper accentuation of the angles of the thoroughfares, avoiding, however, the monotony likely to arise from an everlasting *rounding* of the corners; yet here we see fine angles spoiled by the erection of low, or comparatively low, buildings faced with stone, above which, no doubt, will tower the return brick walls of other buildings. It would be difficult to imagine anything more destructive to architectural effect, or less likely to redound to the credit or ultimate pecuniary advantage of the proprietor, than such a treatment. I do hope that if the rebuilding of any of these angle blocks fall into the hands of any member of our body, he will do his best to impress on his client the desirableness of accentuating the angle.

The competition question has in Manchester had another phase recently added to its already unsatisfactory character. The result of the Victoria Market competition, so far as known, is not likely to give confidence to architects in any future municipal competition. It is not, however, to the cruel disappointment caused by the reversal of the award of the premiums that I would draw your attention, but rather to the conditions of the competition itself. I am well aware that suggestions on the management of a competition emanating from architects themselves, though they might naturally be expected to have a little knowledge of the subject, generally share the fate said to attach to advice given unsought; and yet I think I may challenge any one to produce a scheme fairer for all parties than the "Suggestions on the Management of Competitions," published some time ago by this society. While, however, I had the pleasure of acting as your honorary secretary, I generally found myself too late to introduce it to the notice of a committee seeking designs, in competition, since the first intimation of their intention was usually conveyed to me by their advertisement. In the townhall competition our views were set before the city council, and some of our suggestions were adopted; but it was no suggestion of ours that the council should be at liberty to adopt any features they chose from any of the designs. This clause has, as you are aware, been used as a precedent for the same condition in the markets competition; but I believe the cases are not analogous, for in the latter a general competition was invited, while in the former the clause was introduced, if I remember correctly, into the second competition, when eight architects competed, each receiving three hundred guineas for his drawings. Then to require each competitor to design extensive frontages to the remainder of the plot not occupied by the market itself seems to me useless, unless it be intended to compel each person building thereon to adhere to such design. Should the successful competitor, then, whose premium is swamped in his commission on the outlay on the market only, be unremunerated for designing these other frontages, and submit to his ideas being appropriated by others?

The making a charge of one guinea to architects for the information that should decide them whether the competition be within their scope, was in this instance made, I am given to understand, under some misapprehension. As to the adjudication, not only in this but in any competition, when we take into consideration the number of years of study—and close study, too,—that must be devoted to the art and science of architecture before any one can properly "read" a set of designs, we must come to the conclusion that no ordinary observers can properly cope with the task, and that a report by a competent member of the profession should in all cases be laid before the ultimate judges. And here, again, a difficulty stares us in the face. What if a design equal to one of the most charming of Sir C. Barry's Italian elevations, and distinguished by his most painstaking care in symmetry and elegance of plan, were laid before an adviser of "acrobatic Gothic" tendencies? What chance would there be for the designer? There can be only two modes of avoiding this position. Either the committee must undertake at first that which they have to do at some period—decide on the style to be adopted,—or decide on the professional adviser whom they will consult, and this before announcing the particulars of the competition. Those who will bestow labour and skill on their drawings, without some such guarantees as I have indicated that they will at least receive some consideration, should surely not cavil at the results.

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HOMES IN HOMERTON.

WITHIN the last few days we have looked at some scores of streets, lanes, courts, homes and their back yards, in the district known as Homerton, which forms a portion of the extreme east of the parish of Hackney. The Homerton of to-day is very unlike the hamlet it was fifty years since, or even twenty-five years ago. The whilom hamlet contained a number of well-built red brick mansions, with large gardens, and these were occupied by wealthy merchants of the City. Several of these old residences still remain, but are sadly altered, and others have completely disappeared, and their site and that of their gardens are built upon. Numerous streets of houses have cropped up, and many more at this moment are growing, centrally and at either end of the ancient hamlet which has now swelled into a very populous neighbourhood. The great majority of dwellings now in course of erection, are of the cheap and speculative kind. They are built by a class of small employers, to suit the wants of mechanics, clerks, or those with small annuities, and their owners do not care to let them on any other condition than that of receiving the rent in weekly or monthly payments. These new dwellings are nearly all two stories in height, and contain on an average six rooms, front parlour, kitchen, and wash-house, and three rooms upstairs, one of these being a small bed-room above the projecting wash-house at the rear. The construction of these houses shows that they cannot afford more than proper room for one family, yet two families are to be found in some of them. The inconvenience that must exist in case of two occupiers will be illustrated when we state that the stairs of a number of these houses start from the back room, so that the members of one family would be obliged to pass and repass through the apartment of the other. The intention of the builders of these houses, as they aver themselves, is to let them to only one tenant; but it must be remembered the builders are for the time being only the temporary owners, and their object is to sell them as fast as they are finished. It is immaterial to them what condition these houses may be reduced to in a short time. Externally these cheap-class houses are, to a certain extent, what may be called "neat,"—that is, to the inexperienced eye,—and even their interiors present a certain amount of agreeable accommodation. Cupboards, or lockers, are provided in the recesses, and, as an inducement to a new tenant, Venetian blinds will be put up. In regard, however, to the workmanship and materials, the less, perhaps, that is said the better. Yet we cannot resist mentioning the fact that the doors and sashes are made out of 1¼ in. stuff, and, as a consequence, when ready for their first coat of paint, the smoothening process has reduced them to 1¼ in., and even less. Doors and sashes framed of such scantlings are bound to warp. The stairs are little better than steep step-ladders, boxed between a thin wooden partition and the wall, the partition being continued from the lower floor to the ceiling of the upper room, and of course forming one of the sides of the back top room. The speculators can afford to sell these houses singly, from prices ranging from 150*l.* to 170*l.* and make a profit. The weekly rent of a great number of these houses is fixed at 7s. or 8s. each, and for those which are a little better finished, or perhaps a little more roomy, 9s. are asked. The character of these new dwellings may be summed up—they are built to sell, and being built in rows, they are designed to mutually assist each other in standing or falling. Seven years' wear and tear of occupation, assisted by the elements, will render the majority of them a sorrow and a nuisance to the pocket and the health of their then owners or occupiers.

Having said thus much about some of the new and cheap speculative dwellings in and around Homerton, we will turn our attention to a few of the more aged, many of which in construction and accommodation could not be much worse. These dwellings are situated in the narrow streets, courts, and lanes on either side of High-street. Amongst the places we visited are John-street, Hayward's-buildings, Plough-lane, Cross-street, Church-terrace, Albert-terrace, College-lane, Farm-lane, Pickles-buildings, Crozier-street, Brooke-street, and its continuation Victoria-street, Bergier-street, and its vicinity, the off-shoots of Sheppard's-lane, James-place, and some other smaller courts and passages that bore no name, or, at least, exhibited none. Many of the houses and the back premises in the above-named places are in a very bad and dirty state, and the drainage must be imperfect, or the smell and dirt we found would have disappeared. In several narrow and back streets and lanes there was little evidence of the scavenge-cart or the dust-man. From Brooksby's-walk, extending through Brooke-street to College-lane, a large number of the houses on either side are in a very dilapidated condition in their interiors, and the back premises of some were in a really frightful state, when we made our visit. The places of accommodation were brimful of filth, and the seats, flooring, and fittings seething with rottenness and corruption. About here will be found women and children in rags and in wretchedness, foul walls, foul floors, foul bedding, foulness without, within, and around. We were happy in meeting some instances of cleanly persons and cleanly homes, hemmed in by others whose frightful example was sufficient to demoralise the whole neighbourhood. "My poverty," said one poor, thinly-clad woman to us, "never prevented me from keeping my children, or myself, or home clean." About Brooke-street, between Homerton Church and Homerton Hospital, the dwellings of the working classes are in bad condition, but they must be examined within and at their backs, or else no conception can be formed of their unhealthy state. Many of these houses we are now describing are not very old, neither are they of recent erection; but they are thoroughly ill-constructed, and are out of repair. Apparently, many of them were, when first erected, constructed of the materials of older houses. Were their occupants provided with a better class of dwellings, it would be a benefit to the health of the neighbourhood if they were demolished. About this quarter of Homerton no small number of the vendor and coster class seem to have settled down, interspersed with the labouring class from factories and builders' yards, and other classes of working men.

In a lane off the upper end of High-street, called James-place, the houses have no rear, and contain but two rooms, one below and one above, ascended to by a steep stair. There is a courtway in front, and at the further end there are two places of accommodation for the six houses. One of these closets is out of repair; indeed, the condition of both in the matter of drainage calls for instant attention, as does the whole court. We found some during our visit who complained bitterly against the action of the School Board. Mothers and fathers confessed to us that their children were put to work far too soon, but that they were obliged to do so, as the earnings of their children, small as they might be, were a help. Unfortunately, in Homerton, as in other places, there are numbers of parents who use every stratagem they can to keep their girls and boys from school. Where we found dirt, and filth, and rags, we mostly found the demoralisation of drunkenness. The beer-shops and gin-shops are plentiful everywhere, and a visit on a Saturday night and Sunday convinced us that our deductions from a day visit were well founded.

The homes of the poor must be improved before the work of the School Boards will produce good results; and *pari passu* with elementary education must proceed the inculcation of the laws of health.

Of very old houses of the half-timbered kind, there are a few in this district. Opposite Bridge-street, in the High-street, there are three or four with projecting windows, plastered fronts, and their roof line broken by gables. One used as a butcher's shop is the most picturesque of the lot, as an aged elm-tree springs up from the footway at one end of the projecting shop-front. It is an old landmark, and on the occasion of our visit the aged tree was being cleared of some of its extending branches, and the house was undergoing some repairs.

A few words more by way of *finis* for the present about Homerton. All the available waste ground is being fastly covered over. Four years ago there was a large space of unenticing ground situated between Church-road and Sidney-road. This space is nearly all built upon with a number of the cheap class of dwellings, some of which we have described in the opening of this paper.

Sidney House, a building which once belonged to a wealthy merchant, and which for a number of years has remained untenanted, its owner having fled the district, is now enclosed around, and its garden built upon. A Sisterhood of nuns of the Romish Church occupy this house; and a chapel, run up hurriedly, built of brick, has just been opened a few yards distant. There is plenty of work in this rough district for Christian ministers of all kinds; for sanitary officers, relieving officers, school boards, and for voluntary and philanthropic efforts. We fear that the dearness of coal, if it should continue, will work mischief in this and similar districts during the ensuing winter, should it prove to be severe. The poorly clad and the ill-housed and ill-fed, particularly the children, are certain to suffer from a number of complaints, which are aggravated through cold or a want of proper warmth. Typhus and bronchitis make havoc in winter as well as in other seasons, and cold and unhealthy homes, acting on ill-fed and uncleanly persons, are the best auxiliaries of disease and death.

THE BALDACCHINO A ROMISH ADJUNCT.

THE application for leave to erect a baldacchino in the Church of St. Barnabas, Pimlico, has been argued in the Consistory Court. Dr. A. Stephens, Q.C., speaking on the part of the opposition, said in the course of his address,—It would be his duty to contend that the real object of that application was to introduce, under the authority of the Chancellor's Court, a structure which was an adjunct to a Roman Catholic altar, in order to give a superstitious reverence to the consecrated elements, under the supposition of a corporal presence of Christ enthroned in the so-called altar,—in fact, to erect a monument of Popish superstition which was legally condemned and destroyed as such in the reigns of Edward VI. and Elizabeth. It had been stated in the course of the present application that the erection of the proposed baldacchino was unanimously agreed to at a vestry meeting on the 15th of April, but he contended that as no mention of the special purpose of the meeting was made in the notice convening it, it was illegal. In support of this view he cited a passage from the second volume of Sir Robert Phillimore's "Ecclesiastical Law," but he declined, he said, to take any technical objection in such a case, preferring to treat the matter upon its merits. The term "baldacchino" was so little known to English churchmen that it might be desirable to give a short definition of it. It originally meant, as stated by Mr. Orby Shipley, in his "Glossary of Ecclesiastical Terms," "cloth of gold made at Baldec or Babylon." In old English inventories the word "bandekyn" appeared as a material used for church vestments, and the late Canon Rock, in his well-known work, "The Church of Our Fathers," gave a copy of an entry of things bought for a Roman Catholic church in 1486, containing, among other items, "A canopy for the Pyx of white bandekyn." In time the term "baldacchino" came to be transferred to the canopies made of that material. In the "Rituale Romanum" it was ordered that a baldachinum was to be carried over the Host when conveyed by the priest to a sick person, and in the Feast of Corpus Christi, instituted in 1264 by Pope Urban IV., for the special adoration of the consecrated wafer, a baldacchino was ordered to be prepared to be carried over the Sacrament. Its use was also enjoined in the Rubric of the Roman Missal for the Mass on Good Friday. In Italian churches the canopy of state over the altar was not unfrequently an architectural structure of marble or stone in the form of a dome, supported by four pillars; and the term "baldacchino" was applied to such structures. The first definition of it by Mr. Shipley was "a structional covering on four columns of marble or stone, or a canopy hanging from the roof over the altar in churches," and in Bingham's "Christian Antiquities" and Webster's Dictionary were similar explanations. To all these erections the words "ciborium" and "canopy" were also applied indifferently, and it was thus that the baldacchino in Italian churches answered the same purpose as the simpler structure of the canopy in the English churches. Mr. Street, R.A., the architect of the proposed baldacchino at St. Barnabas, in a letter to the editor of the *Guardian* in August last, spoke throughout of the baldacchino as a canopy over the altar, and used the words "canopy" and "baldacchino" as synonymous terms. In tracing the history of the use of the canopy in the Church of England it was to him a source of sincere gratification that his learned friend Mr. Phillimore had conceded the point that baldacchinos and canopies were substantially identical both in

principle and object. He now proposed to show that such ornaments were adjuncts to a Roman Catholic altar, and totally incompatible with the rites and ceremonies of the Church of England. In 1215 the doctrine of Transubstantiation was first decreed by the Council of Lateran, under Pope Innocent III., in these terms:—"The body and blood of Jesus Christ are truly contained under the form of bread and wine, the bread being transubstantiated into His body, and the wine into His blood by the power of God." Before that decree no baldacchino or canopy was used or enjoined in the Church of England, and no mention of them was made in ecclesiastical documents; but in 1279 Archbishop Peckham of Canterbury issued the following order to the Church in this country:—"We charge you for the future that the most worthy Sacrament of the Eucharist be so kept that a tabernacle be made in every church with a decent enclosure, according to the greatness of the cure and the value of the church on which the Lord's Body may be laid." Canon Rock explained the necessity for that ritual observance by stating that "Christ is always coming down from above to dwell upon our altars," and added that the first wooden or stone tabernacle resting on the altar seen in this land was put up in Queen Mary's reign. The object of Archbishop Peckham's constitution was obvious. The doctrine of Transubstantiation having been decreed, it was requisite that it should be impressed by every possible means on the minds of the people. That end was best attained by placing a canopy over the Host, making that the most prominent object in every church, and thus promoting increased veneration for the consecrated wafer. This was in full accordance with the ordinary practice of the Roman Church, which invariably inculcated new doctrines through the means of the bodily senses. Canon Rock bore out his assertion in these words:—"It was profound devotion to the victim offered there that stimulated the piety of the faithful to spread the richest carpets round the altar, to hang gorgeous veils on either side, to canopy it with domes of porphyry or silver, to pile chalices of gold or precious stones upon it; to render it, in fine, as glorious as possible." He added, that the bishop's chair was not to be honoured with a baldacchino, unless a similar or more sumptuous canopy was suspended above the altar, for the honour of the consecrated wafer. The result was that, at the period preceding the Reformation, every church in England had a canopy more or less elaborate over the Host, indicating thereby the (supposed) presence of Christ in the consecrated wafer. The canopy was thus one of the adjuncts of the Romish altar, and being the most prominent object before the eyes of the congregation, it was most immediately connected in the minds of the people with the superstitious doctrines of the Mass. It was, in fact, the point to which the gaze of the multitude was directed in the adoration of the wafer. In the reign of Edward VI. the canopies which were found in all the English churches were removed and sold as monuments of superstition. The era on which the reformed Church of England was substantially based was the reign of Elizabeth. Her Act of Uniformity, with the statute enacting the Thirty-nine Articles, constituted the Magna Charta of the Protestant Reformed Church. That Act abolished the Mass, with all its adjuncts, and consequently the canopies over the sacrament were removed, like the rest, as monuments of superstition. In 1559, and again in 1565, the queen sent out commissioners to seize and destroy all the adjuncts of the Mass and other monuments of superstition then so plentiful in the churches, and among these, in the ancient chronicles, the canopy was constantly named. That universal condemnation and destruction of canopies clearly established the fact that such erections were incompatible with the reformed doctrine of the Church of England in regard to the sacrament of the Lord's Supper, being designed to instil into the minds of people the doctrine of the actual presence of the very body and blood of Christ in the consecrated elements. The doctrine of the Church of England was that the very body and blood of Christ were in Heaven, and not here, and that Christ was to be adored and known sitting on the right hand of God in Heaven. He submitted that it had been clearly established that, when the Roman Catholic religion prevailed in this country, canopies over the altar were in use; but when the Acts of Uniformity of Edward and Elizabeth came into force these canopies were condemned and destroyed as monuments of superstition.

SCIENCE AND ART CULTURE.

On Thursday evening, the 23rd ult., Mr. J. C. Buckmaster delivered an address before a large and appreciative audience, at the Mornington Institute, Hampstead-road, on "Science and Art for the People." Mr. Buckmaster said that his business that evening was to bring under the meeting's consideration some of the arrangements which had been made by the Government for the purpose of promoting and encouraging throughout the country a more general knowledge of science and art. This department of Government came into existence in this wise. It was thought by some, who had not paid much attention to the subject, that the Science and Art Department and the South Kensington Museum were entirely new organisations of the State, and that they had been called into existence without any definite purpose. But the intentions for which they were designed were by no means new to the Government; and long before the building of schools for the promotion of education, very large grants of public money were annually made for the purpose of the cultivation of science and art. So early as 1815 the attention of the Government was directed to this subject by a pamphlet, which recommended that the Government should vote a sum of money for the purpose of appointing competent lecturers upon the various branches of science and art which were thought likely to be useful. A few years after a general movement took place for the purpose of establishing institutions the chief feature of which was the delivery of a systematic course of lectures upon the various branches of science, art, and literature. It was the object of these institutions to teach, chiefly by means of lectures, something of these laws. An apprenticeship to a trade, he thought, disciplined men's natures to the performance of the kind of work with which they were engaged, and the doing of this day by day required skill; but scientific education addressed itself to the man's mind, enabling him to reason and think on what he was to do; and it was this idea that, some forty or fifty years ago, called into existence mechanics' institutes and such-like institutions.

Speaking of the amusements of the people, the lecturer went on to say that the character of such amusements provided was to be always considered a safe index of the refinement and culture of the people; the more educated a man was, the greater became his enjoyment of life, and the higher he rose above his fellow-creatures. In 1840, attention was again directed to the movement, and Mr. Foley Thompson, then President of the Poor Law Board, established at that time schools of design. These schools were almost entirely subsidised by the State; but they failed to exercise any important influence on the arts and manufactures of this country; they, in fact, never originated an original design. What was wanted was a general elevation and improvement in the art and tastes of the whole people. You wanted to cultivate a love of the beautiful in nature and art. If any improvement was to take place in the art industry of the country, it must come from the people being better educated in art, and this must have the commencement in teaching people to draw freehand drawing. But he doubted whether it was possible for people to arrive at a true appreciation of art unless they had been led to love and admire everything that was beautiful in nature. We had done all that we could on this earth to make this world as ugly as possible. The majority of men passed through this world perfectly insensible to the refining influences of nature. Cultivate, he said, then, a love of nature—if it were only a little plant, if it were only a tiny flower; love that and it could not but have a vast influence in refining a man's taste. The teaching of art was not easy. If you could only manage to obtain one good work of art, however simple it might be, if you studied that little work it would do you more good than a mere superficial careless gazing. The influence of a work of art must not be measured by the surface which it covered. A man who produced one lasting work of art exercised a far more powerful influence on humanity than a man who had painted thousands of pictures. A picture, to be of any use to you, must be studied; it must be looked at for some considerable time, and not in the mere casual way that we sometimes observed it. What was wanting was to cultivate carefully and accurately the powers of seeing things in their right light. This art-knowledge had always exercised a very important influence in the civilisation of the people. Without progress in art there was no progress in civilisation. The teaching of science, however, was a more difficult thing. Most of us could understand a work of art; but the results of science could not be made so evident to the senses. The gradual progress of development was far more important, probably, as a means for increasing wealth, than the mere conventional application of art. About fifteen years ago the Government passed a very comprehensive scheme for encouraging and promoting a more general knowledge of science, which name was merely another word for knowledge. All of these sciences were to be divided into a number of parts. Amongst these was geometry, the science of form teaching men something of form and shape, a knowledge of which was very desirable, so that the material should be turned to the best possible advantage. Then we had mechanics, machine drawing, free construction, elementary mathematics, theoretical mechanics, animal physiology, navigation, botany, &c., &c. But he would despair if any young man tried to master most of these. He believed in one or two subjects well done; and one subject thoroughly mastered was better than a superficial acquaintance with many. These sciences were valuable as part of your education; they were valuable also in their relation to work. The language of science was to most working men the language of a foreigner, and you could make no progress in any of these sciences unless you had mastered the definitions and axioms upon which these sciences are based, and with more exact language among working men there would grow up better language among the men themselves. Was there, he asked, anything in a life of labour which necessitated that hoarse, rough way in speaking to each other unfortunately too common among working men? It had been said that to give working men a knowledge of the sciences it would make them discontented, but reason and humanity rebelled against this. In conclusion, he said, educate men and they would feel more interested in their work; and new methods and new plans would suggest themselves to the man who had first been educated in those principles in which the success of his work depended.

PROPOSED BATHS AND WASHHOUSES IN SOUTHWARK.

The erection of baths and washhouses in the different crowded parishes of the metropolis appears at present to be occupying the attention of the several local authorities concerned, and we now find that the vestry of St. George the Martyr contemplate the establishment of an institution of this nature. At a meeting of the vestry held last week, it was decided to apply to the Local Government Board for the sum of 12,000*l.*, belonging to the vestry, held by that Board, and invested in Consols, for the purchase of a site and the erection of baths and washhouses thereon. The Local Government Board hold the amount named under the following circumstances. Four years ago the Board ordered the parish of St. George the Martyr into union with St. Saviour's Union and Newington, the result being that land and workhouse schools at Mitcham belonging to St. George the Martyr were sold, and after paying their share of the cost of St. Saviour's Workhouse there was a balance of 12,000*l.*, invested as already named by the Government Board, the parish taking the interest in mitigation of rates. At the meeting of the vestry last week it was stated that the president of the Local Government Board was willing to hand over the money to the vestry if they brought forward a proposition to use it for any permanent benefit to the parish, and it was urged that the erection of baths and washhouses would not only be a permanent benefit, but were highly necessary in that crowded district. It was agreed that, in the event of the Local Government Board complying with the request of the vestry, steps should immediately be taken for the erection of the building.

Proposed New Dispensary at Wandsworth.—The Wandsworth and Clapham Guardians contemplate the erection of a new dispensary in the neighbourhood of the Wandsworth-road, and at their meeting last week a committee was appointed to look out for a suitable piece of ground, and also to ascertain the cost, in view of the erection of the building.

MARGATE DRAINAGE COMPETITION.

The corporation held three meetings to consider the applications for admission to this competition, and on Tuesday last the selection was completed, and with the following result, viz.,—Messrs. Lewis Angell, J. Bailey Denton, J. E. Eachus, Gotto & Beesley, Russ & Minns, and Whittaker & Perrot, of London; Mr. Edward Appleton, of Torquay; Messrs. Brierley and Holt, of Blackburn; Mr. Goodison, of Liverpool; and Mr. Wilson (Native Sewage Guano Company's engineer), were selected. To these ten gentlemen will be offered the two premiums of 200 guineas and 100 guineas respectively for the best and second best plans, to be sent in to the council before the 30th of January next, the corporation stipulating that the selected plans must be approved by the Local Government Board before being premiated. There were in all fifty-four candidates.

An episode occurred in the course of the proceedings, Mr. Coghlan, the borough surveyor, having been put up as a candidate, and elected as one of the competing ten; but on a very strong remonstrance, led by Mr. Councillor Sear, himself a member of the profession, pointing out the manifest unfairness of the corporation putting up their own *employé* to compete; that his success would be open to a strong imputation of collusion; and that his local knowledge, which ought to be available to all the competitors who chose to apply to him for information, would give him a most unfair advantage over others,—Mr. Coghlan honourably withdrew, and Mr. Lewis Angell (who tied with Mr. Jacobs, of Barrow-in-Furness) eventually was selected in his stead.

THE FALL OF A CHIMNEY AT NORTHFLEET.

Sir,—"The jury found that the men were accidentally killed, and expressed their sympathy with Messrs. Gostling and with the relatives of the deceased; the coroner remarking that he agreed with the verdict." Surely this is not the kind of conclusion proper to so sad an accident as that by which six persons lost their lives, and others were severely injured, by the recent fall of a chimney at Northfleet. If one of these lives had been lost by a collision on the neighbouring railway or river, there would have been an exhaustive inquiry, not merely with a view of placing the responsibility for the disaster upon the right shoulders, but for the prevention of future accidents of the like kind. In the interest of all those who may be concerned in the building of chimney-shafts, the matter calls for some investigation beyond that which the coroner and jury have been able to give to it.

Nothing could be more satisfactory than the account of the work given in evidence at the inquest, if we did not know that the chimney fell. This was no hap-hazard job of the scamping contract kind. The design was made under professional advice, and carefully studied, with a view to the provision of unusual strength. All the materials were of the best, and were provided by the proprietors. The builder was experienced in this special class of work, and his workmanship was perfectly satisfactory to the proprietors, the architect, and to the experienced surveyor who was called in after the accident. Nevertheless the chimney fell, and the one thing which we have learnt from the catastrophe is, that if rebuilt in all respects as before it must certainly fall again. Let us see if, by examining the evidence anew, something cannot be learned from it of more practical utility than this.

Now, the building of a chimney 220 ft. in height, though no great undertaking in the manufacturing districts, is not so common in the neighbourhood of London as to be quite free from everything of an experimental character. Both bricks and mortar differ very materially from those in use in the north; and this should influence the designs of the structure, the execution of the brickwork, and the rate of progress. It is, therefore, not with a view of suggesting blame in any quarter where all seem to have taken great care and pains; but rather as suggesting modification in future practice that the following remarks are made:—

1. It is shown by the evidence that the thickness of the brickwork of the shaft was, on the average, not less than one-third more than in certain chimneys named, and, in particular, that in the lower part it was nearly double the strength of that in the famous chimney at St. Rollox. But as the accident seems to have originated at the top, there is no need either to question or to prove the sufficiency of the lower part, and it seems clear that there was no excess of strength beyond what is usual in the upper part of the shaft. The practice, indeed, is to make the wall at the top of a shaft, 1½ brick in thickness, where the internal diameter exceeds about 4 ft. 6 in., and to continue this thickness downwards for about 25 ft. Here the internal diameter was 8 ft. 9 in., or nearly double the above dimension, and the work in 1½ brick extended downwards for as much as 36 ft. 3 in., a consideration which, if it does not suggest the necessity for greater thickness of work, clearly suggests great care in the construction of that actually used.

2. What was the nature of the bond? The scientific evidence shows simply that there was "no filling in with bats or rubble," but it would be easy to make very unsound work out of whole bricks, and especially in the case of 1½-brick circular work of this radius. Indeed, it is easy to see that without extreme care there might be no effectual bond for the resistance of vertical fracture across the wall.

3. "The principal part of the bricks were of Rutter's paviours and the best picked stocks." Of what sort were the remainder, and how were the whole combined in the upper part of the shaft? If there was a facing of one kind and a backing of another there would almost certainly be some difference in thickness of the bricks, and consequently in the mortar-joints there would probably also be a difference in the degree, or at least in the rate, of absorption of the two bricks, and from one or both of these causes it is possible that the weight of the cap would, while the work was green, be carried by a very thin facing of wall.

4. Was anything done to aid in the bonding of the upper part of the shaft beyond grouting in "every few courses" with neat Portland cement? Wherever additional bond is supplied beyond that produced by the overlapping of the bricks it should be so strong as to absolutely resist every force that can be brought against it. A weak bond may resist the process of settlement to a certain extent, and then by snapping suddenly may be worse than no bond at all. Does the term "grouting" indicate, as it usually would, that the internal joints were left with little or no mortar, and were then filled up with liquid cement, in which case the desirable homogeneity of the work would be destroyed; or was it simply poured over the course after flushing up? In the latter case, though much advantage could hardly be expected, the possible mischief would be less.

5. The shaft, which was 220 ft. high, occupied sixteen weeks in building; not too short a time, perhaps, under certain conditions, but it is about the time ordinarily occupied in carrying up brickwork to one-fourth or one-fifth of this height. We are not told how much of this time was occupied in building the lower portion, and cannot therefore judge of the rate at which the upper part, where the accident originated, was carried up. Clearly, however, the work must have been quite green and in that condition of gradual settlement and consolidation which is most dangerous under heavy or irregular loading.

6. What were the design and construction of the cap? Its weight of 19 tons 3 cwt. would be of no material consequence,—assuming the brickwork under it to be perfectly sound,—but, as before said, it was green, and if its bearing on the shaft was not perfectly regular, the disasters may not be difficult to account for. No doubt the suggestion of the two bricklayers, that the cap had "swagged" the shaft over, was rude and inexact; but it seems only in accordance with common sense that this weight placed on the shaft only on the day preceding the accident must have had some influence in causing it. It may be that, as the architect said, the weakest time in respect of the cap only was on the previous night, when it was just completed, but the "weakest time" for the part where the fracture took place was unquestionably the time at which it fell.

7. What was the precise outline of the fracture visible immediately after the accident? A drawing of a building which has fallen down is often much more instructive than one of a building which stands.

Any one of the causes here indicated, or two of them in combination, would have gone far to produce such an accident as this. Possibly none of them may have existed; but if so, the difficulty of accounting for the accident is but increased; for, whatever it may have been, it cannot have been trivial in its action, for no trivial cause would bring down a structure such as this. It is to be hoped that all parties concerned will be ready to afford such information as may clear up the mystery which now exists, and render such works,—which are now increasingly necessary,—less hazardous in time to come. B.

SHAFT BUILDING.

Sir,—In the *Builder* of last week an accident in building a chimney-shaft at Northfleet is mentioned, which I think would not have happened if the following precaution had been taken:—

The employment of hard-burnt bricks, or paviours, of a *uniform thickness*; before being used, all wetted with water, and the brickwork grouted every course, and levelled and plumbed every 3 ft. Portland cement, instead of Dorking lime, tested as to its hardening quality in the proportion of one cement to two of clean sharp grit, well washed.

I think the top part of the shaft (being only 14 in. in mortar) was not sufficiently dry when the heavy cap was placed on it, which caused it to collapse or bulge. W. Whitehead.

PORTLAND CEMENT AND THE NORTHFLEET CHIMNEY SHAFT.

Sir,—Portland cement having been the subject of some remarks in your journal lately, and having had much experience of its use, I beg to trouble you with a few notes.

Some years since I was building a large factory; the walls were of stock bricks, the arches of the windows were described to be gauged and set in Portland cement. Of course a gauged arch must be cut in soft bricks; mine were so, and in order that the joint might be fine, my foreman set the arches in Portland cement made up very soft, the bricks well soaked, and the result was, that the cement expanded, and broke every brick in every arch. As they were semi or cambered arches, with a considerable rise, no harm resulted.

The above facts were brought to my memory on reading an account of the evidence given before the coroner as to the chimney at Northfleet, by gentlemen whom I know to be competent to express an opinion. I am inclined to think that the design was good, the materials were described as of the very best, but the work is described as flushed in with Portland cement, and if it was done with cement without a large admixture of sand, it is possible that the expansion of the cement rent the chimney from top to bottom. Brickbat.

PASSENGER REGISTER FOR OMNIBUSES AND TRAMWAY CARS.

Almost innumerable unsuccessful attempts have been made, in the interests of the proprietors of omnibuses and tramway-cars, to check the receipts of conductors. Probably a considerable proportion of the men who enter upon the occupation of conductor have been failures in other pursuits; and although there are doubtless many honest men on the footboard, it may be feared that some of them have a secret sympathy with the frank avowal of a certain shop assistant who, in asking for an engagement, was required to state what wage he expected. His reply was "I do not reckon so much on the wage as on what may be my chance of thievedom." It is perfectly notorious that the omnibus and tramway companies suffer greatly from the dishonesty of servants, some of whom put more in their pockets, probably, by peculation, than they receive in wages.

One of the most recent devices employed for keeping conductors honest, is by a system of tickets, delivered to passengers when they enter the vehicle, which they are expected to destroy when they leave it. These tickets they are requested to see torn out of a book, which contains a counterfoil, showing a fare corresponding to what they have paid. If every passenger were to require a ticket, were to see it actually taken from the book, and were to make certain that it could not be used again by a second passenger, the check would be tolerably effective; but this is not done. Some passengers, from sentimental, ill-founded, or improper considerations, object, by using these tickets, to acting as a species of

detectives; others carelessly, or in ignorance of the intention of the tickets, do not ask to be furnished with them; while others, again, leave them on the seats or floor of the carriage, and give the conductor an opportunity, if he be so minded, of issuing them again without an additional counterfoil debit against himself for the additional fare, thus defeating the essential object of the tickets. In any case, a self-acting register of passengers and their fares seems a thing much to be desired, alike in the interests of proprietors, passengers, and conductors.

A very effective apparatus of this character has been perfected by Mr. Marshall Arthur Wier, of Great Winchester-street, in his Pneumatic Passenger Register, which was exhibited in operation in one of the London Tramway Company's cars between Blackfriars Bridge and Brixton and back on Friday in last week.

This register, it my be stated, has been brought to its present efficient state, after a long series of trials and experiments upon the London Tramway Company's line, such trials having resulted from time to time in the modifications and charges that seemed desirable. The difficulties that beset the inventor have a curious illustration in one of the "steps" of his progress. Among other plans he contrived a "Step Register," in which he was fairly successful in recording the number of persons who trod upon the step, if not the entrance and exit of the actual passengers; but this system had radical defects, that he has now corrected effectually. Among the defects referred to were the readiness of persons to jump on to the step of the platform to make inquiries of the conductor; others get on and find they are on the wrong car; boys jump up for a short ride, when the conductor is beyond arm's length; the driver has to get off to attend to harness and other matters; the conductor has to get off to bear a hand in assisting old women of both sexes, who, in their trepidation, may make a species of treadmill of the step, and press it several times before they can get fairly either in or out. All these steppings would be recorded against the conductor, which is, of course, entirely incorrect.

The apparatus is now in operation on the London Tramway Company's line, and, as shown on Friday, consists of a neat brass gate across the door that moves in or out with ease by the person entering or leaving. This gate is connected, under the platform of the car, with the lower end of another,—a slide gate,—which passes behind, and follows the passenger in or out, as the case may be, and thus prevents two persons entering or leaving and registering at the same time. The gates are evenly balanced, and move easily and rapidly, so that no impediment is offered to the passenger, and entering and leaving the vehicle are quickly done. A brass box, locked, contains the register, and is attached to the apparatus. Strips of paper inside the box, of the kind used in electric telegraphy pass round two brass reels, and are moved by the apparatus. The passengers are noted by prickers passing through the paper at regular distances as the passengers enter and leave, the upper line indicating those who enter, and the lower line those who leave; the division of fares at each station is noted by blank spaces on the paper between the holes made by the prickers. This may be effected by either of four methods, two of which were shown on the car in operation separately. The first is by "crowning" the road at the stations from which the fares are charged. The road is gradually raised about an inch above the ordinary level, the rise being almost imperceptible. A wheel, of about 6 in. diameter, is placed under the car. That is attached to levers connecting with a box containing an air-tight chamber, with a tube leading to another chamber in the registering box. The movement of the wheel over the crowning portion of the road, presses the air-chamber, and causes the air to pass into the chamber in the registering box. The space on the paper, showing the station, is thus made apparent. The other mode is effected in a similar manner, by the conductor pressing a knob; the movement by the force of the air is produced in the same way. If he omits to press the knob at the proper station, the larger fare would be recorded against him. By the latter method the crowning of the road is not necessary. A very ingenious invention for noting the number of times the conductor enters the car is contained in a small box inside the car. This, also, is worked by means of the atmosphere.

Mr. Wier, the younger, inventor of this ingenious apparatus, which is worked partly by mechanical means and partly by compressed atmospheric air, is the originator of other pneumatic patents, and has, we understand, received a high testimonial from Capt. Halpen, Commander of the *Great Eastern* steamship, for the efficient system of pneumatic signals, invented by Mr. Wier, and used in the *Great Eastern* and other ships in laying submarine cables. For his Passenger Register the inventor may, we think, fairly claim that it will record every fare that should be paid to the conductors of the omnibuses or tramway-cars that are fitted with it; that it will note not only the number of fares, but their respective amounts; that it renders the use of tickets and the employment of detectives unnecessary; that it records the entrance of the conductor into the car, for the collection of fares, or other purpose, and distinguishes passengers who have mistaken their car, provided they leave it within a reasonable distance after entering; that the apparatus does not leave control of the register in the power of the conductor, or admit of its alteration by collusion between the conductor and the inspector or clerk in charge of the registering box; that the parts of the apparatus are strong and simple, and not likely to be easily damaged by rough usage; that the apparatus may be readily adapted and fitted to the present class of street vehicles for the conveyance of passengers; and, in fine, that its adoption would largely increase the receipts of tramway and omnibus companies, improve the moral, and it may be reasonably expected, by the increased wages that would be afforded, the material and social condition of conductors, and tend directly to the benefit of all parties concerned.

The enormous number of passengers carried by tramway-cars and omnibuses alone throughout the world, may be illustrated by giving the number of passengers carried in London and the suburbs. There are three tramway companies carrying about 40,000,000 passengers annually; the General Omnibus Company carry upwards of 40,000,000, and it is estimated that other omnibus companies in London carry about 20,000,000; thus giving 100,000,000 passengers carried annually, whose fares at only 2d. each amount to 16,666,666*l*. Every penny for this vast traffic throughout the world passes through the hands of an army of men who have only the semblance of a check upon them as to the amount received.

ARCHITECTURAL ASSOCIATION OF IRELAND.

The opening meeting and *conversazione* was held at the Rooms of the Association, 212, Great Brunswick-street, on Thursday evening, October 23, the president, Mr. J. J. O'Callaghan, in the chair.

Amongst those present were:—Jonathan Pim, M.P.; P. J. Smyth, M.P.; Very Rev. Canon Pope, Maurice Brooks, Marcus Keane, J.P.; J. R. Carroll, W. Fennell, H. Oldham, H. Brett, jun.; T. Goodwillie, A. W. Robinson, R. O. Longfield, T. Holbrook, J. Kirk, James Farrall, D. J. Freeman (treasurer), S. Catterson Smith, John Holmes, Dr. Barker, T. H. Longfield (hon. sec.), C. J. Allen, W. Neill, J. C. Morrell, Joseph Robinson, P. S. Swan, Dr. T. Purcell, C. Geoghegan, Peter Roe, A. E. Murray, J. Mulligan, E. L. Clarke, J. L. Robinson (hon. sec.), — Monsell, Dr. Frazer, Dr. Grimshaw, T. Dockrell, T.C.; W. M. Mitchell, V.P.; Rev. J. F. Shearman, — Mitchell, R. S. Swan, Sandham Symes, H. M'Manus, R.H.A.; Rev. J. Carolan, — Maguire, J. P. Griffith, C.E.; E. T. Owen, James H. Owen, P.R.I.A.; J. W. Haughton, H. Keogh, H. Wilmot, Charles H. Brien, H. Douglas, J. Cahill, E. Oldham, &c.

Mr. Longfield (hon. sec.) read the annual report.

The President then delivered the annual address.

Mr. Jonathan Pim, M.P., proposed the thanks of the meeting to the president for his address, and said that a great improvement had taken place in city buildings in the last twenty years. Twenty years ago there was not a building in Dublin of any architectural pretensions, except those erected in the last century, whilst now we could boast of as many and as fine public buildings, banks, insurance and mercantile offices, as any other city in Europe. Such an improvement had been brought about by societies like the Association, which he hoped would go on and prosper.

The Very Rev. Canon Pope seconded the resolution in an eloquent speech. God had not given power to man either to create or destroy anything on this earth, but the nearest approach to creative power is when the architect is enabled to raise a beautiful building that has originated from his brain and inventive genius. He said that he also had to bear testimony to the great improvement in architecture of late years, especially of buildings that were dearest to him,—the ecclesiastical edifices of Ireland, which were set as gems in the beautiful scenery for which the island is famed.

Mr. Rawson Carroll, in moving "that the Association is deserving of the support of the profession," said that as a Fellow of the Royal Institute of the Architects of Ireland, he promised the hearty co-operation of the elder body with the Association in all its undertakings.

On the motion of Mr. Maurice Brooks (Lord Mayor elect), it was resolved "that it is most desirable to enlist the sympathies of the kindred professions of painting, sculpture, and engineering." This motion was seconded by Mr. H. M'Manus, R.H.A., on the part of painting; Mr. M. A. Hayes on the part of sculpture; and Mr. Griffith, C.E., on the part of engineering.

A CRY FROM LEOMINSTER.

You have recently protested against the destruction of ancient buildings abroad; allow me to call the attention of your readers to the condition of the magnificent cathedral-like church of Leominster. It presents examples of some of the finest and most perfect Norman, Early English, and Decorated work in the kingdom, and on a short visit to the place last week my attention was first attracted to the smashed windows, one opening being at least a foot square; in and out of these openings the birds were gaily flying. On going inside, the roof of the south aisle was found soddened with rain, and the walls were saturated; from one part of the roof a number of fungi were growing, and upon the ground beneath *ferns* had been recently gathered, the place was full of birds, and an old altar painting at the east end was ripped into holes. During wet weather the rain comes in in streams, and what might be set right now for tens of pounds will soon require hundreds for its renovation. The south side is in course of rapid and irremediable destruction. W. G. S.

THE IRON RIBAND PILLAR.

This patent (of Messrs. Lee & Rogers's invention) has now been introduced for a sufficiently long period of time to test its value thoroughly; indeed, in the hands of the Riband Telegraph Post Company, which was formed at Manchester to develop and work it, it may be said to have passed beyond the introductory and experimental stage, and to have established itself as an essential adjunct and appliance in construction. The title of the company is, we are disposed to think, calculated to mislead, inasmuch as it would be an error to conclude that the application and use of the riband principle was limited solely to telegraph-posts; for there is really no case in which a vertical standard or support is needed, wherein its employment would not be advantageous, in substitution for the ordinary cast-iron columns, which have hitherto stood as the representatives of mere material strength. In point of distribution and economy of material, the Riband Pillar or post, possesses peculiar merits. Thus applied in a post, 10 ft. or 12 ft. in height, and 8 in. in diameter, the iron measuring only 1 in. in width by ¼ in. in thickness, a weight of 3 to 4 tons can be supported by as little as 2 cwt. of iron, which is the weight of the riband post, inclusive of cap and base; and, moreover, at a cost as low as from 5s. to 6s. per lineal foot. At the Company's Works, at New Islington, Manchester, many special forms and applications of this pillar, as also of a complete line of telegraph posts, of considerable length, doing duty with the telegraph wires in the immediate vicinity of the latter, may be seen. One of the Government telegraph engineers, Mr. Culley, in the discussion at the Society of Telegraph Engineers, on a paper upon the subject of the Riband Telegraph Post, remarked that if every one knew them, all the old wood poles would require to be removed from half the towns and districts in England.

In connexion with railways alone, there are

other purposes for which these pillars are coming into general demand and use,—such, for instance, as for signal-posts, pillars for supporting the roofs of railway-stations, gate-posts, &c., and, we learn in particular, that the company are executing large orders for India.

Among the general applications may be enumerated lamp-pillars, sign-posts, gate-posts, pillars of verandahs, conservatories, and greenhouses.

The company have just supplied two coal-sheds, fitted with the riband post, to the Famjong Paggar Dock Company at Singapore.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The library is open during the session, every Monday, Thursday, and Friday evening, from six to nine, as well as daily. The Council consider that this new arrangement is more likely than the former hours of seven to ten, to meet the requirements of students and others, who will be able, without loss of time, to use the library on leaving their offices. Several donations in books and drawings will be announced on the opening meeting of the session,—November 3rd.

The president, Sir Gilbert Scott, R.A., is not expected to attend the opening meeting, having been recommended to remain in Italy until the close of the year, in order to recruit his health. He has, however, forwarded to the Institute an inaugural address, which will be read. It is proposed that the Ashpitel Prize, founded by the late Mr. Arthur Ashpitel, and awarded for the first time this year, shall be presented on the same evening to the candidate who gained the highest number of marks in the architectural examination of 1873.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY.

On Saturday last the members of this Society visited, by permission of the Lords of the Admiralty, the extension works at Chatham Dockyard. They were met there by Mr. Bernays, the civil engineer in charge, and were by him shown over the whole of the works. Mr. Bernays gave a lucid description as well of the drawings and models as of the method of construction, and materials used in the works, describing the numerous difficulties encountered, and the means used for overcoming them.

Two docks are completed, and ready to take in the largest ironclad in the world, and the others are in rapid progress.

Mr. Bernays pointed out the great extent to which he had made use of concrete in the construction of the docks, and stated that the proportion of cement over the great bulk of the work was but one in twelve, but that the greatest care was exercised to ensure getting a first-class cement.

LABOURERS' COTTAGES WITH THREE BEDROOMS.

Sir,—In your issue for the 11th of October, you gave an abstract of a paper by Sir W. Jones, on "Labourers' Cottages," in which the writer lays down that three bedrooms are required, and two living-rooms; and that the best mode of giving this accommodation is to place the third bedroom on the ground floor. May I give the result of some experience, tending to show that this method of arranging the rooms will not always lead to success?

Some years ago Sir Joseph Whitworth desired to build some good model cottages, and employed me to see what had been done elsewhere, and to design his cottages for him. I arrived at the result which is embodied in Sir W. Jones's recommendations, namely, that the cottages should have their third bedroom on the ground floor, and they were so built. They were compact, and considered satisfactory, and I always fondly imagined that I had contributed something towards the solution of an important problem, till, having to go through the cottages after they had been occupied some time, I was chagrined to find that in no single instance had my ground-floor bedroom a bed in it! Those cottagers who were able to muster up a little spare furniture, a bit of carpet, and something to hang on the walls, had made a best parlour of it; few who were not so well off had not used it at all, except to store fruit or lumber. I have no doubt that in many other parts of England the result will be the same. The repugnance to occupying a ground-floor bedroom, which is, as we all know, common among English people of higher station, will effectually prevent the intention of cottage builders from being carried out if they adopt the plan recommended by Sir W. Jones; and if this be so an injustice may have been, I am sure, unintentionally done to the competitors referred to in the paper whose designs for cottages did not adopt this arrangement of rooms.

The true solution is the one which is condemned as inferior by the writer of the paper,—"building an external shed, and carrying up the walls to the top of the cottage;" and in one series of artizans' cottages, in Essex, which I have had an opportunity of examining, I found the well-known difficulty of keeping a lodger distinct from the household, provided for by giving this back bedroom an independent approach up a step-ladder, and through a trap-door out of the shed, as well as its door off the staircase. It strikes one, however, that a respectable cottager would often prefer to exercise that control over his lodger which is implied in letting him in by the regular door of the house, and that this, like many other ingenious devices, might be often foiled by the persistence of the inmates in adhering to their old arrangements.

T. Roger Smith.

INAUGURATION OF THE VIENNA WATERWORKS.

The Vienna Waterworks having been completed, after a labour of about three years and a half, a large fountain was erected on the Schwarzenberg Platz, in the grounds opposite to the palace of Prince Schwarzenberg, close to the famous "Ring-Strasse." Here the festive ceremony of inaugurating the supply of pure Alpine water to the city of Vienna and all its dependencies has taken place. An aqueduct conducts the water for many miles from the far mountain springs of the Kaiserebrunnen and the Stixenstein. These waterworks have been executed by the well-known hydraulic contractor, Mr. Gabrielli. The mayor, Dr. Felder, received a new token of distinction on the occasion from the Emperor Francis Joseph, who conferred upon him the order of the Iron Crown of the second class, which entitles the recipient to be raised to the rank of a Baron of the Empire.

At the great city fête inaugurating the completion of the works, the Emperor, Archdukes, and all the official personages of Vienna were present. The Burgomaster delivered an address, which was replied to by the Emperor, and both orations were greeted with great applause. The city in the evening was brilliantly illuminated. Count Hoyos Sprinzenstein, the donor of the Alpine source of the supply, has been raised to the dignity of privy councillor, and also decorated with the Order of the Iron Crown of the second class. Professor Suess has long striven to demonstrate the advantages of this undertaking, and was congratulated by the Emperor.

The centre column of water at the opening, it is said, rose to a height of above 180 ft.

JERSEY NEW HARBOUR.

CONCRETE BUILDING.

The necessity for increased harbour room and shelter led the States of Jersey to invite designs from four of our leading harbour engineers, the sum of 150 guineas being voted to each gentleman towards the expenses attending the preparation of the designs. The competition, however, was not restricted to those who were thus specially invited to take part in it, but was made general, the result being that forty-three designs were submitted, besides the four special plans. The Harbour Committee collected evidence, investigated the designs, and, after mature deliberation, selected three from among them, to which they awarded premiums. The selected designs were respectively by Mr. (now Sir) John Coode, Mr. Giffard, and Mr. Kinniple, whose names are placed in their order of merit, Sir John Coode, one of the invited competitors, taking the first premium. Shortly after the awards had been made, Mr. Giffard, a young engineer of ability and promise, was unfortunately drowned off the island. Ultimately Sir John Coode's design was selected for adoption, the necessary surveys were made, the preliminary arrangements completed, and the foundation-stone was publicly laid in August, last year, by the Bailiff of Jersey, supported by the authorities of the island.

The works on the western side of the existing harbour consist, in the first place, of a protecting breakwater, which commences at Fort Elizabeth and is carried over the Crow Rock, which has to be partly removed for that purpose. From the Hermitage the breakwater will be continued in south-easterly direction to a rock known as the Platte, where it will terminate with an elbow, 170 ft. long, at the head of which a lighthouse will be placed. This breakwater, which will have a total length of 2,700 ft., and will be 60 ft. high, and 38 ft. wide at the top, is to be constructed in depths of water ranging from 12 ft. to 20 ft. at low-water of ordinary spring tides. About 1,400 ft. of this structure will have its foundation below low-water, the depths in some places being 20 ft. The eastward arm of the breakwater commences by a roadway, which leaves the inner end of the present Victoria Pier, and skirts the foot of South-hill, as far as the Point de Pas, just below the Engineer Barracks.

A special feature of this work is the method of its construction, which is of concrete masonry, with steps, landings, and copings of granite. Sir John Coode has had considerable experience in concrete construction in other similar works. The landing-pier will have a roadway 48 ft. wide, flanked by a range of buildings, consisting of open shelters and waiting-rooms for passengers by the steam packets, refreshment-rooms, lavatories, lock-up sheds, and other convenient offices. The top of this range of buildings will form a promenade 18 ft. wide, having a parapet wall on the seaward side, and a light iron railing on that next the roadway. The main walls of the structure are being formed of compound blocks of concrete, connected by cross-walls of the same material, the spaces thus formed being filled in with rubble stone.

The estimated cost of the breakwater and landing-pier is 253,000*l.*, and it is anticipated that they will be completed in about nine years from the present time.

The *Times* of October 25th gives a fuller account of the works.

The authorities of Jersey are also erecting a lighthouse of considerable proportions, under the same engineer. This also is of concrete, formed on the spot, and so as to make the structure a monolith as nearly as may be. Very rapid progress is one of the results of the use of this material. It is expected that the light will be exhibited early next January.

ASSOCIATION OF MUNICIPAL AND SANITARY ENGINEERS AND SURVEYORS.

A meeting of the Midland Counties' Branch of the above Association was held at the Royal Pump-rooms, Leamington, on Saturday, October 18th. Mr. Lewis Angell, president; Mr. Lemon, of Southampton, vice-president; Mr. Jones, of Ealing, general secretary; Mr. Pritchard, of Warwick, local secretary, and about thirty members of the Association, were present; also Dr. Baly, medical officer of Leamington; and Dr. Wilson, medical officer of the Warwick Sanitary Union, as visitors.

The President, in opening the proceedings, said it afforded him very great pleasure to have the privilege of presiding at a meeting of such an important section of the Association as that of the Midland Counties. He regarded the Midland section as a most important one, because very many of the members represented large populations, large industries, and places with large sanitary requirements. They were so scattered that they necessarily could not meet very often, but when they did so each member represented a community. He was sure that meetings like the one recently held in Manchester must not only be of advantage to them individually as members of the Association, but to the communities also which they represented.

The members visited the Leamington Sewage Pumping-station and the Warwick Pumping-station; also Lord Warwick's sewage-farm at Heathcote, and the Warwick Corporation sewage-farm; after which they returned to Leamington, when papers were read by Messrs. Bettridge, Monson, and Allen upon sanitary matters.

The President, in closing the proceedings, said where a town, in adopting irrigation, had to contend with great difficulties,—was hampered in obtaining land, had to construct extensive pumping works, and to convey the sewage to a great distance, it was impossible to realise any profit if the original outlay on the necessary works were

taken into consideration. On the other hand, some towns might convey their sewage to the land by gravitation, and land might be obtained cheap, and, of course, such places would be able to adopt irrigation at a comparatively small cost. The questions of outlay and profit and loss must, therefore, be regarded as local questions. There were many places where it was utterly impossible to apply irrigation. He had recently had an opportunity of hearing and reading all that could be said for and against irrigation, and he was bound to confess that, using his knowledge and experience as an engineer and his common sense as a citizen, there was nothing which had hitherto proved so efficient and perfect a disinfectant as the earth. If circumstances were favourable, he was also of opinion that there were no better means of utilising sewage than irrigation. The question of profit and loss, as he had already said, must be entirely subordinate to local circumstances. There was one thing which they, as sanitary engineers, ought to guard against, and that was being possessed by one idea on the sewage question. It did not follow that because irrigation might be right and proper under certain circumstances, it was the only system. He agreed that raw sewage should not be put upon land. There should always be something to take out the solid matters, which caked the land.

The members afterwards dined together at the Crown Hotel, Leamington.

ACCIDENTS.

Fatal Fall of a "Steeple Jack."—An inquest on the body of John Prince, of Manchester, aged 25, has been held. Deceased was a fixer of lightning conductors and repairer of chimneys, and was also employed at the Broughton Copper Works as a labourer. He and several other men accepted an engagement to point a boiler chimney at the works of Messrs. Mather & Platt, Brown-street, Salford. Deceased was standing on a ladder, the foot of which was resting on the slated roof of the pattern-room, when the ladder slipped and threw him to the ground. It was not known what caused the ladder to slip, but there was a very strong wind blowing. Deceased sustained a severe injury to his head, of which he died. Verdict, "Accidental death."

Singular Accident and "Cure."—At the Iron-works, Seend, near Melksham, according to the *Bristol Times*, a large iron tube, about 30 ft. in circumference, through which hot air is blown from the engine, sometimes gets obstructed by ashes, and then a man has to creep into it for the purpose of removing them. A man named Drewe got into the tube for this purpose, and not making his reappearance a man was sent into the tube, and found him jammed in a narrow part and insensible. He was pulled out, still insensible, with severe scars and burns on his body. "The Staffordshire mode of bringing him to life" was then adopted. "A hole was dug in the ground large enough to receive Drewe's head, and into this hole his head was put, face downwards, and carefully covered up in the 'mother earth,' with the exception of a small hole left when breathing time came. Wonderful to relate, there were soon signs of returning life, and Drewe so far recovered as to 'unearth' himself. Brandy was administered to him, and he was soon himself again," which no doubt he would have been,—all the same,—minus the earth process altogether.

HOSPITAL ARCHITECTURE.

Dr. J. H. Worthington, of the Asylum for the Relief of Persons deprived of the Use of their Reason, situated near Philadelphia, describes the improvements in the asylum:—

"The improved window introduced in the front of the wings consists of an upper sash of irons, movable to the extent of 6 in. from the top, and a lower one of wood, which rises its whole height, and is protected on the outside by a light iron guard; the whole window being 7 ft. high, 2 ft. 10 in. wide in the clear, and reaching to within 2 ft. 10 in. of the floor. All the halls and corridors occupied by patients are now provided with windows of this description, and are thus rendered much lighter and more cheerful than they were formerly. The advantages of windows opening from the corridors directly into the external air, which induced the founders of the asylum to incur considerable expense in order to secure them, are now realised to a greater extent than ever before. To sit by the open windows, and to breathe the pure air fresh from the surrounding country, is a privilege which cannot be fully enjoyed in hospitals constructed in the usual way, with rooms on both sides of the corridors, but is now freely partaken of by all classes of patients in the asylum, and is peculiarly grateful to those whose physical suffering or weakness prevents them from taking exercise in the open air."

CLAIM FOR WAGES UNDER RECENT ARRANGEMENTS.

The first legal case arising out of the agreement entered into between the Master Builders' Association and the Metropolitan Society of Operative Plasterers, with respect to the increased rate of wage up to 9d. per hour, came before Mr. Serjeant Wheeler, the judge of the Brompton County Court, at its last sitting, and caused a large attendance.

The plaintiff, a plasterer, named Slade, claimed the small amount of 2s. 7½d. of Mr. Smith, a builder; and Mr. Newman, who appeared for the plaintiff nominally, but virtually for the Trade Societies, in opening the case, said, the sum sued for was of no importance as against the question involved in the dispute, as the decision would probably settle a difference between a number of workmen and their masters. In this case the claim was for an extra ½d. per hour between the 2nd and 9th of August last.

Mr. Slade stated that in July he entered Mr. Smith's employ as a skilled plasterer, and he then received the customary wage of 8½d. per hour. After he had been at work three weeks, the Master Builders' Association authorised by a general meeting of builders, agreed that plasterers should be paid 9d. per hour, the same as masons, bricklayers, and carpenters, after Saturday, August 2nd.

Mr. Barnard, counsel for the defendant, contended that evidence of this nature was not admissible, as there was nothing to show that the defendant had come to any such agreement between himself and his workmen, and he objected to its reception.

In answer to the judge, the plaintiff said the majority of employers paid, and still did so, the extra ½d. per hour to their workmen. If he were paid at the increased rate for the week ending August 9th, the sum now sued for would be due to him. He had seen other plasterers paid in the defendant's employ the 9d. per hour on the 9th of August.

In cross-examination by Mr. Barnard, the plaintiff said he was a member of the Society of Operative Plasterers, and the Society had taken the case up for him, and would pay all the expenses of the trial. He was aware that the rise in wages was originally intended for masons and joiners only.

The Judge here interposed by observing that in his opinion if the defendant's men had gone to him on the 2nd of August, and acquainted Mr. Smith that they would not continue to work for him unless the agreement said to be entered into by the Builders' Association as to the rise of one halfpenny, was paid by him, then they would be entitled to recover; but as far as the plaintiff's evidence had gone he did not see any case against the defendant.

Mr. Newman urged that if some of the men were paid 9d. per hour, and his client only 8d. per hour, the plaintiff was entitled to recover his claim.

The Judge said he certainly did not hold that view of the case. A man had a right to do what he liked with his money. The plaintiff was bound to either prove an agreement to which the defendant was a party, or show that his master, Mr. Smith, promised to give the increased halfpenny per hour. This the plaintiff had failed as yet to do.

Mr. Newman here inquired of the plaintiff if he were aware whether Mr. Smith was a member of the Master Builders' Association.

The plaintiff replied that he was. He and others deputed some of their fellow-workmen to wait on the defendant's foreman on Wednesday, the 6th of August, to make full inquiries respecting the rise of wages, and the foreman then said he would see Mr. Smith about it. As nothing further was said about it, the men concluded that the firm would pay the 9d. per hour, and which they did to a number of their hands.

The learned Judge said even now there was really no case for the defendant to answer.

Mr. Newman then called Mr. Thomas Langdon, secretary to the Metropolitan Society of Operative Plasterers, and this witness deposed to his knowledge of an agreement being made, to which Mr. Smith was a party, and that the agreement was reduced to writing.

The plaintiff's solicitor said the witness was alluding to a letter, signed by Mr. Bird, the Secretary of the Master Builders' Association. If admissible, he would put the letter in evidence.

The Judge said the plaintiff and his society must first prove that the defendant, Mr. Smith, was a member of the Master Builders' Association referred to, and they must also *subpœna* the person from whom the letter was sent to the Metropolitan Society of Operative Plasterers to give evidence as to the proceedings of the society by which the plaintiff contended Mr. Smith was bound.

The plaintiff's solicitor admitted he was not in a position to prove all this, and accepted a non-suit.

The counsel for defendant said his client would not ask for costs.

Mr. Serjeant Wheeler observed that it was very handsome treatment of Mr. Smith, or he certainly should have given them, because the action was not brought by a single man, but by a body of men.

Nonsuit, without costs, accordingly.

KENSINGTON GARDENS.

Sir,—I am glad to see that you have brought the subject of the trees in Kensington Gardens to the notice of the public. It is indeed full time that something was done, as the gardens at the present time are in a most disgraceful state, and sadly require the superintendence of some intelligent person. The decay of so many fine trees may, I think, be put down to three causes,—a bad soil overdrained, too thick planting, and the habit of raising the ground round the roots of the trees, causing the rotting of the bark at the crown of the roots. The first cause can in part be removed, where the trees stand by themselves, by removing the soil around the roots, and replacing it with better; or if the trees were watered occasionally in the summer-time with liquid manure (sewage), the same end might be perhaps gained. In the second case the trees, as you suggest, should be thinned; and, lastly, if the ground were kept away from the bases of the trees, the third cause of mischief would be avoided In these last cases the cause of mischief seems so obvious that it is extraordinary that the persons who have the management of the gardens should not see it. At the present time two fine trees at the entrance of the gardens, near Rotten-row, may be seen, both of which have been killed by raising the ground around their roots.

An Inhabitant of Kensington.

"ASSOCIATED HOMES."

Sir,—I have long urged the social necessity of these adopted Homes to a vast number of persons in the middle and lower classes, combining (as they might be made to do) all the privacy and independence of the individual home; the stringency and selectness of, say, a West-end club; the order, domestic arrangements, and committee of management of our great London and Continental hotels, and, like them, erected by companies; lastly, economy, enormously less, affording that social and intellectual intercourse of society not otherwise attainable; diminishing (that refuge for so many) evening amusements, drinking, abuse of tobacco, the social evil, idleness, and dissipation; and avoiding that source of all ruin to young people the life and solitude of lodgings, chambers, and isolation of living.

Augustus John Harvey, F.S.A.

RUST'S MOSAICS.

Sir,—Referring to your remarks on "The Use of Ornamental Tiles," in your last issue, as I notice you term the mosaics manufactured by me "artificial," I am anxious to correct the impression which this description would be likely to convey, and to call attention to the fact that this material, as laid in the north court of the South Kensington Museum, &c., and the glass mosaics used by the ancients, at St. Mark's, Venice, &c., are identical, and in no particular *more artificial* than that or the other kinds of ancient mosaics, viz., marble and clay.

The general prejudice, especially among the architectural profession, to any material coming under this head, is my reason for troubling you in the matter.

J. Rust.

LEGACY TO WIGAN.

We understand that the late Mr. Joseph Taylor Winnard, surgeon, of Wigan, who was interred in the cemetery there last week, has left a handsome legacy to the town, in which he has long resided. The executors (one of whom is a local architect) under the will of the deceased have informed the mayor, through their solicitors, Messrs. Leigh & Ellis, that the residue of Mr. Winnard's property is bequeathed to the mayor of Wigan for the time being, for the purpose of purchasing books for the proposed free library. The amount has not yet been stated, and many figures between 10,000*l.* and 30,000*l.* have been mentioned as the sum which is bequeathed to the town. Mr. Thomas Taylor, who has offered to give a building for a library, may now begin its erection at once, knowing that as soon as erected its contents will be ready, and further, that it may be stocked in a manner which should make the institution one of the first of its kind in the county or the kingdom.

THE ECONOMIC CONSUMPTION OF SMOKE.

The operation, at Glasgow, of Messrs. T. & T. Vicars's patent self-stoking smokeless furnace, which is perhaps a little better known in England than in Scotland, is thus spoken of in the *Glasgow Herald*. It meets the case more thoroughly than any invention of a similar kind that has hitherto come under notice, and is simple in construction as it is efficient in operation. The coal is placed in a hopper, over the front part of the furnace, into which it falls in small quantities through a couple of apertures. It is not necessary to open the front door of the furnace, except to see how the fire is getting on, for by a simple mechanical readjustment the man in charge of the furnace may regulate the quantity almost to an ounce. As it is added to from above, the coal sinks down, and slides slowly inward until it reaches the bars forming the bottom of the furnace. These bars are acted upon by plungers, which carry them forward together, with their layer of coal on the top, and then, an eccentric being applied, every third bar in the series is brought back to receive a fresh supply. In this systematic and continuous way the furnace is fed with coal, which passes right through in slow and easy stages, the same quantity of fuel being at all times in exactly the same state. Combustion is therefore perfect, the smoke is burnt up, and the waste fuel is discharged, in the form of clinker or slag, into the ash-pit. The works of which we have been speaking are those of Messrs. Crum, at Thornliebank, where upwards of thirty of these furnaces are in operation, and others are being erected with all diligence. A small donkey-engine, with four-horse power, is sufficient to

work sixteen furnaces, the manual labour in connexion with them being reduced to a minimum.

It has been found that when "triping" or round coal is used, the saving is from 20 to 25 per cent., while in the case of dross it is about 15 per cent. So far as the working of the furnaces is concerned, it seems to be all that could be desired. We may add that one of the furnaces at the Thornliebank Works was taken down after being in operation for nearly twelve months, and the furnace-bars were found to be quite perfect. The amount of wear and tear on these is reduced to a minimum by an arrangement of water-troughs, wherein the edges of the bars are constantly immersed, which effectually keeps them cool and insures their preservation. The cost of a furnace on this principle is 150*l*.

PUBLIC BUILDINGS IN READING SINCE 1848.

A CORRESPONDENT has sent us the following list of new public buildings, restorations, and extensions in Reading during the last twenty-five years:—

New Churches.—Christ Church, Grey Friars, St. Stephen's, St. John's, All Saints'.

Churches Restored and Enlarged.—St. Mary's, St. Giles's, and St. Lawrence's.

New Chapels.—Trinity, Wesleyan, Carey, Augustine, Brethren, Providence, Zoar, Cumberland-road, Spring-gardens.

Chapels Enlarged.—King's-road, Friends', Wesleyan Reformers', Primitive Methodists'.

New Church Schools.—St. Mary's, St. Giles's, St. Lawrence's, Trinity, St. John's, Grey Friars', St. Stephen's, Christ Church, St. Mary's Chapel (enlarged).

New Chapel Schools.—Castle-street, King's-road, Trinity, Friends', Cumberland-road, Wesleyan.

Halls.—Town Hall (enlarged and decorated), Albert Hall, West-street Hall, Abbey Hall.

Public Institutions.—Berks Hospital (several enlargements), dispensary, County Courts with county police stations, borough police station, Forbury-gardens, restoration Abbey-gateway, markets, abattoirs, savings-bank, bathing establishment, twenty-eight almshouses, water company (extension), gasworks (extension), new Caversham Bridge, two reformatories, cattle market, Church of England Young Men's Institute, Servants' Training Institution, sewerage pumping works, Freemasons' Hall, and union houses.

General Schools.—New Grammar school; boys', girls', and infant schools upon British system; Blue-coat school, Coley and Silver-street Board schools, Mr. Sutton's school (New Town).

Railways.—New stations of Great Western and South-Eastern railways.

Buildings in Progress.—The sewerage works, new master's house of Grammar school, new chapel of Grammar school, Newtown and Erleigh and Katesgrove Board schools, new public offices.

Of the above buildings, the majority of which were erected for the direct spiritual, intellectual, and physical benefits of the inhabitants, forty-six were raised by voluntary contributions, showing the public spirit of the town.

The following is a carefully-calculated summary of the cost of the churches, chapels, schools, and charitable institutions erected in Reading by voluntary contributions (from which all debts have been deducted) during the same period:—

Churches and Church Schools	£74,325
Chapels and Chapel Schools	32,350
General Institutions	28,200
	£134,875

DESTRUCTION BY LIGHTNING AND BY FIRE.

Ripponden.—The church spire has been struck by lightning. There was a lightning conductor, however. In its descent some portion of the electricity entered the clock chamber, doing considerable damage to the gearing connected with the chiming apparatus. Thence it descended by the wire-rope by which the weights are suspended, severing it and breaking in two one of the heavy weights. It then appears to have been attracted by the gas-piping, the lead portion of which it melted, igniting the gas at the meter. A woman gave the alarm, or the woodwork within the tower must have been destroyed, together with the works of the clock.——In the same district a mill has been struck by lightning. It entered at the end of the blowing-room, igniting some cotton on its way out.

Glasgow.—A disastrous fire has occurred in an industrial school at Mosbank, near Glasgow. During a short lightning storm the roof of the building was struck, and the woodwork having ignited, the flames spread with alarming rapidity. Before the City fire brigade could reach the spot, the centre portion of the institution was enveloped in flames, and, in consequence of the scarcity of the supply of water, the firemen were unable to check the progress of the conflagration, which soon extended to the eastern and western wings of the establishment. The fire has almost completely destroyed the large building, the chapel and the engine-house alone being saved. The damage is roughly estimated at 12,000*l*., but this sum is covered by insurance. The boys connected with the institution, numbering over 400, were at play in the grounds. They were taken to the Barnhill poorhouse until other accommodation is provided. The buildings, which were of brick, were opened only about three years ago.

Halifax.—Two churches in the parish of Halifax have had a narrow escape from destruction by fire. The little church at Lydgate, Todmorden, was in great danger in this respect, and but for the timely arrival of a fire-engine would have been totally destroyed.

THE RICHMOND DRAINAGE AND SEWAGE WORKS.

A SPECIAL meeting of the Richmond Select Vestry (as the urban sanitary authority) has been held, for the consideration of the several schemes for disposing of the sewage of the parish, so as to comply with the requirements of the Thames Navigation Act, 1866, and the Thames Conservancy Act, 1867. Admiral Stopford, J.P., occupied the chair, and twenty-five members were present. Thirteen schemes were submitted from the several engineers, and were described as follows:—No. 1, "Immersabilis" (irrigation); No. 2, "Mr. G. Erder Eachus" (irrigation); No. 3, "Messrs. Mill & Wilcocks" (irrigation with filtration); No. 4, "Experience" (irrigation combined with intermittent downward filtration); No. 5, "Practice" (intermittent downward filtration with irrigation, or for irrigation only); No. 6, "The Solution" (intermittent downward filtration); No. 7, "Drainage and Sewage Engineer" (downward intermittent filtration); No. 8, "Experientia docet" (intermittent filtration); No. 9, "X.Y.Z." (chemical and intermittent filtration); No. 10, "Mr. George Smith" (filtration by charcoal); No. 11, "Ex Luco Lucellum" (irrigation by A B C process); No. 12, "P. F." (filtration); and No. 13, "Spes" (filtration). The several schemes were considered *seriatim*, and on a show of hands two only—viz., No. 4, "Experience," and No. 5, "Practice"—were reserved for further consideration, the others being outvoted. Subsequently these two were examined and contrasted, when "Practice" came to grief on the motion of Mr. Steel, seconded by Mr. Jones. It was ultimately resolved—"That the scheme of 'Experience' be further considered at a special meeting on Tuesday next, with a view of adopting the same if approved." Several of the members were anxious to adopt it at this meeting, but it was ruled by the chairman, on the wording of the Vestry notice, "That no scheme could be adopted that day under any circumstances."

VARIORUM.

"CHILDREN of the Olden Time," by the author of "A Trap to Catch a Sunbeam," is a remarkably pretty book for the young people of this time, who, reading it merely for amusement, and very amusing it is, will find in it information they will be glad to recall when they have ceased to be children. It was a capital idea, going back to the Saxons, the Normans, the Plantagenets, and so forth, and would justify even a bigger book on another occasion; but as it is we can strongly recommend it, and shall be surprised if it does not come to be regarded as classic in juvenile literature. The book is copiously illustrated from old sources, including an engraving of the children of Charles I., after Vandyck. Mrs. Mackarness's little book has a preface by her father, Mr. J. R. Planché, which serves to afford assurance of correctness even beyond what might be looked for in such a work; and the publishers, Messrs. Griffith & Farran, have given it an attractive appearance outside and in.——Mr. Murray has published the eloquent and suggestive sermon, delivered in St. Paul's Cathedral, by Dr. Hessey, on the occasion of Sir Edwin Landseer's funeral, the idea inculcated being,—"The Artist a Great Moral Teacher." With his outburst on "the duty of delight," we fully sympathise, and agree with him that God bids us rejoice, and that He thus bids those of us who have the power to enable our brethren to rejoice, innocently.

Miscellanea.

The Sanitary Survey of the Alnwick Union.—The valuable reports of the sanitary inspector of the Alnwick district continue to be made to the rural sanitary authority. Not only hamlets, but single premises are carefully examined and reported on. Among others, the more extensive and important premises of Howick Hall are overhauled. The inspector states that within the last few years Mr. Rawlinson converted all the privies in and about the house into water-closets. "There are now," says the reporter, "eight water-closets in the house, and four others in adjoining buildings. These twelve water-closets are drained into the burn at a point properly remote from the premises. Formerly the outlet of the main drain was immediately in front of the hall, but it was unbearable and dangerous there, and a lower point has been substituted. Until the great question of the day, as the Earl admitted to me that he considered the proper disposal of sewage to be, has been satisfactorily determined, this disposal must be accepted as sufficient. The water supply is not quite so contenting. . . . . The best mode of improving the water supply to this great house would be to prevent the discharge of any drains into Howick burn by the utilisation of all the sewage along its course, as elsewhere; but as this cosmopolitan question is not yet sifted to its bearings, pure water might meanwhile be obtained from the hill ranges bordering his lordship's estates."

The Sewage Question at Maidstone.—The report of Mr. George Livingstone, C.E., Borough Surveyor, on the collection, removal, and utilisation of the sewage of Maidstone, has been received. He is of opinion that there are many reasons why irrigation should not be adopted in Maidstone, and the *Maidstone Journal* thinks the A B C system should be also discarded, as it has had a very fair trial, and has been found wanting. The Borough Surveyor proposes to collect and remove the whole of the fœcal matter and other refuse of the town, and to dispose of it as a dry manure; and in the second place, to convey the whole of the remaining sewage by a low-level intercepting outfall-sewer, to a point below Allington Lock, on the line of which should be constructed a suitable tank through which the sewage should be filtered, the effluent water being allowed to flow into the river in a comparatively pure and harmless condition. The removal of the contents of dust-bins, night-soil, and other refuse, Mr. Livingstone recommends, should be carried out by the local authorities, on a plan which is an adaptation of the Pail or Tub system in use at Nottingham and other towns, and profit is calculated upon from the undertaking.

Cheltenham and Gloucestershire Victuallers' Asylum.—The foundation-stone of this asylum has been laid by the Duke of Beaufort. The building will be in the Domestic Gothic style of architecture, according to plans by Mr. Darby, of Cheltenham, architect, and will cost about 1,200*l*. The accommodation to be provided for the inmates will be complete, but at present only the central portion of the building will be proceeded with; two wings, for which provision has been made, will be added in due course. In all, twelve families will be accommodated.

Parliament-street.—Many will be glad to hear that Messrs. Glasier & Sons have received instructions to proceed with the sale of the materials of the houses in Parliament-street, in front of the new Home and Colonial Offices.

Woolstone.—The works at the church here, mentioned in our last, were executed by Mr. A. Hawkins, of Cheltenham.

Eucalyptus v. Fever.—The French Academy of Sciences has received an interesting communication from M. Gimbert, who has been long engaged in collecting evidence concerning the Australian tree, *Eucalyptus globulus*, the growth of which is surprisingly rapid, attaining besides gigantic dimensions. This tree, it now appears, possesses an extraordinary power of destroying miasmatic influence in fever-stricken districts. It has the singular property of absorbing ten times its weight of water from the soil, and of emitting antiseptic camphorous effluvia. When sown in marshy ground, it will dry it up in a very short time. The English were the first to try it at the Cape, and within two or three years they completely changed the climatic condition of the unhealthy parts of the colony. A few years later its plantation was undertaken on a large scale in various parts of Algeria, and complete immunity from local fever has been maintained by it. In the island of Cuba, paludean diseases are fast disappearing from all the unhealthy districts where this tree has been introduced.

Prizes for Designs of Philadelphia Exhibition Building, 1876.—The United States Centennial Commission, at a meeting held in Philadelphia, on August 8th, according to the *Polytechnic Bulletin*, awarded the premiums of 1,000 dollars to each of the authors of the best ten of the competing designs for the Exhibition building 1876, viz.—To Samuel Sloane, of Philadelphia, for No. 9; to John McArthur, jun., & Jos. M. Wilson, of Philadelphia, for No. 11; to Calvert Vasex, of New York, for No. 21; to Collins & Autenrick, of Philadelphia, for No. 23; to C. C. Clark & H. A. and J. F. Sims, of Philadelphia, for No. 32; T. C. Sidney, of Philadelphia, for No. 15; J. S. Fairfax, of Wheeling, W. Va., for No. 20; Thomas M. Plowman & Co., Washington, D. C., for No. 22; Francis R. Gatchel & Stephen Rush, of Philadelphia, for No. 24; and J. H. Veydage, of Terre Haute, Ind., for No. 25. From these ten the design for the building will be selected, it being understood that their authors have the privilege of amending their designs before competing for the main prize.

Finsbury Park.—A right of way over Finsbury Park is preserved by law to Messrs. Wing & Ducane, who, as the owners of the pasture land adjacent, are empowered to drive cattle across the park at all hours of the day and night. In consequence of this, the park cannot be properly fenced in and preserved. An offer was made by the Park Committee of the Metropolitan Board of Works to make a special road through the park, but it was not accepted, and the question is now under arbitration. Pending the report of the arbitrator, Mr. Baron Pollock, it has been thought desirable to postpone all action with regard to the promotion of a Bill in Parliament to remedy the nuisance.

Soluble Glass in the Arts.—The employment of this substance in the arts is rapidly extending, and it has become indispensable in many industrial branches. It seems to be specially well adapted to the production of cements: when intimately mixed with fine chalk it is found that a hard cement will be formed in from six to eight hours. With powdered sulphide of antimony a black mass is produced, which is susceptible of taking a high polish, and possesses then a superb metallic lustre. Fine iron-dust gives a gray-black mass of great hardness. Zinc-dust gives a gray mass of much hardness, and having a metallic lustre. Zinc castings can be readily repaired by its aid.—*Journal of the Franklin Institute.*

The New Townhall at Wavertree.—The townhall which has been erected by the Local Board of Wavertree has been formally opened. The foundation stone was laid in August of last year by Mr. J. A. Picton, chairman of the Board. The architect is Mr. John E. Reeve, of Wavertree and Liverpool, and the builders are Messrs. O'Kills & Morrison, of Wavertree. The opening was celebrated by a dinner in the new building, Mr. Picton presided; and the guests included the mayor of Liverpool, and other officials.

Scindhia's New Palace at Gwalior.—We learn from the *Bombay Gazette* of September 20th, that the new palace which Maharajah Scindhia is erecting at Gwalior, is an exact copy of the Government House in Calcutta. There are at present 9,000 men at work on it.

Antiquities in the Caucasus.—*La Caucase* states that the archæological excavations made during the past summer in the districts of Alexandropol and Etchmiasdin, in the province of Erivan, have produced important results. Utensils of iron, silver, gold, and bronze have been found, which belong to an age anterior to the introduction of Christianity into the country. The excavations in the neighbourhood of Alexandropol have brought to light a Pagan temple of gigantic dimensions, and not far from it a cuneiform inscription, of which a photograph has been taken.

Hospital Barracks.—One of the twenty gold medals given by the Empress Augusta for the purpose of rewarding those persons who have this year exhibited the best articles for the care of the sick and wounded in war, has been awarded to the Crown Princess of the German Empire, for the model of an improved hospital barrack, executed by Mr. Jacobi, an architect at Homburg, from drawings and descriptions of her Royal Highness. On being informed by the committee of the award, the Crown Princess at once decided that the medal should be sent to Mr. Jacobi, who has shown great skill in the construction of the model.

Improvements at the Midland Station, Derby.—Extensive alterations have been going on. Additional offices have been erected for the clerks and station-master; and these and other alterations and extensions have cost several thousand pounds. Important improvements have also been made in the refreshment department of the station, with new *buffet*, refreshment-rooms, and dining-room. The new dining-room is 30 ft. by 36 ft., and occupies the site of the station-master's offices and the second-class refreshment-room.

The Assyrian Expedition.—The proprietors of the *Daily Telegraph* have received a complimentary letter from Mr. Winter Jones, on the part of the trustees of the British Museum, thanking them warmly for the valuable collection of antiquities which were brought together by Mr. Smith in his recent expedition to Assyria. The antiquities,—upwards of 500 in number,—are now all in the British Museum, except the stone monument of the reign of Merodach-Baladon I., king of Babylon, which is on its way to England.

Remains from Mileto.—The Messrs. de Rothschild have just made to the (Paris) Administration of Fine Arts a valuable present, consisting of columns, statues, and bas-reliefs coming from the ruins of a temple dedicated to Apollo-Didymus, discovered in the neighbourhood of Mileto (Anatolia), in the course of excavations made for some years past at the cost of these gentlemen. According to *Galignani*, these relics of antiquity will be placed in the Musée des Antiques at the Louvre.

All Souls, Oxford.—A reredos, discovered some time ago in the chapel of All Souls, Oxford, is being restored to its original beauty by Mr. Geflowski, of London. All the niches and canopies are completed, and a number of statuettes and other figures have been fixed. Earl Bathurst, a Fellow of the College, has undertaken this work, at a cost of between 3,000*l.* and 4,000*l.*

A Wilberforce Memorial.—The memorial stone of a chancel to the Church of St. Michael and All Angels, at Silvanmore, Isle of Wight, which is being erected to the memory of the late Bishop Wilberforce, has been laid on the feast of Saints Simon and Jude, by Miss Raine. The chancel alone will cost 1,700*l.*, and towards this sum Miss Raine has given 1,000*l.*

The Old Opera House, Paris.—At half-past eleven on Tuesday night a fire broke out in the old Opera House, in the Rue Lepelletier, Paris. The flames soon spread, and in three hours the destruction of the building was complete, although a large number of engines were at work endeavouring to save it.

TENDERS

For building at Saffron-hill, for the Ragged School Shoe-black Society. Mr. M. C. W. Horne, architect:—

Pritchard	£3,679 0 0
Scrivener & White	3,555 0 0
Wagstaff & Son	3,475 0 0
Staines & Son	3,443 0 0
Niblett & Son	3,145 0 0
Wegner	3,058 0 0

FOR SCHOOLS AT HULL.

For School Board schools now erecting at Hull. Mr. Augustus W. Tanner, architect. No quantities.

Daltry-street School, for 750 children:—	
Habbershaw	£5,521 10 0
Brown	5,444 0 0
Helas	5,325 0 0
Stanley	5,269 0 0
Barritt (accepted)	4,456 18 0
Courtney-street School, for 816 children:—	
W. & J. Hall	£6,466 0 0
Musgrave & Son	6,200 0 0
Marshall	5,618 0 0
Hockney & Liggins	5,449 10 0
Hutchinson & Son	5,383 0 0
Brown	5,375 0 0
Habbershaw	5,315 7 6
Jackson (accepted)	5,224 0 0
Bulmer	4,228 10 0
Lincoln-street School, for 816 children:—	
Drury & Harper	£5,138 15 0
Evington	5,075 10 0
Sergeant	4,874 0 0
Lison & Wilkinson	4,830 0 0
Barritt	4,739 12 0
Helas & Son	4,602 10 0
Brown	4,455 0 0
Jackson (accepted)	4,428 0 0
Wawne-street Schools, for 750 children:—	
Habbershaw	£5,140 10 0
Helas	5,016 0 0
Brown	4,960 0 0
Barritt	4,857 17 0
Hutchinson & Son	4,799 0 0
Jackson (accepted)	4,763 0 0

For vicarage-house, Finchley. Mr. Norton, architect. Quantities by Mr. Thacker:—

Beresford	£3,180 0 0
Boden	2,950 0 0
Stephenson	2,751 0 0
Tibbitts	2,745 0 0
Rankin	2,700 0 0
Niblett & Sons	2,700 0 0
Simpson & Baker	2,674 0 0
Carter	2,670 0 0
Plowman	2,600 0 0
Boyce	2,578 0 0
Smith	2,577 0 0
Gilmour	2,520 0 0
Sharp	2,499 0 0
Blackmore & Morley	2,493 0 0
Webber	2,466 0 0

For additions to Rosemount, Eastbourne, for Mr. Matthey. Mr. H. E. Rumble, architect. Quantities by Messrs. Hovenden Heath & Berridge:—

	General Works.	If Concrete Walls.	Add if old Ship Oak Joinery.
Cheesman	£7,087	£6,977	£596
Colls & Sons	6,987	6,647	900
Holland & Hannen	6,770	6,730	1,513
Peerless	6,636	6,438	450

For an addition to 2, West Kensington-gardens, for Mr. R. Lloyd. Mr. W. P. Griffith, architect:—

Lawrence & Sons	£248 0 0
Morant	215 0 0
Wilson	195 10 0

For constructing new roads and drains on the Eversfield Estate, St. Leonard's-on-Sea. Fowler & Hill, architects, London and St. Leonards:—

Cole	£3,293 0 0
Thompson & Son	2,950 0 0
Wainwright	2,850 0 0
Potter	2,631 12 7
Symonds	2,508 0 0
Williams	2,443 0 0
Hughes	2,407 3 0
Goodair	2,219 10 0
Wood & Geary	2,167 0 0
King	2,000 0 0
Hughes	1,770 0 0

For new vagrant wards, &c., at Uxbridge. Mr. George Eves, architect. Quantities by Mr. Sidney Young:—

Taylor	£1,292 0 0
Garratt & Co.	1,180 0 0
Nias	1,129 0 0
Kearley (accepted)	1,038 0 0

For alterations, painting, &c., to St. Matthias Church, Bethnal-green. Messrs. T. & W. Stone, architects:—

	General repairs.	Add if painted and grained to sittings.
Brown	£600 0 0	£50 0 0
Thomerson	576 0 0	75 0 0
Wire	575 5 0	88 0 0
Kiddle & Son	563 0 0	24 0 0
High	496 10 0	25 10 0
Higgs	479 1 0	48 7 0
Howard*	434 0 0	61 0 0
Christopher Bros.†	277 0 0	30 0 0

* Accepted. † Withdrawn.

TO CORRESPONDENTS.

W. M. T.—D.—H. G.—M.—O. S.—L. A.—C. R. S.—W. W.—J. F.—J. N.—Miss W.—H. H. & B.—G. & Sons.—A. W. T.—C. J.—J. W. S. (next week).—M. M. (next week).—E. R. (thanks).—W. K. (thanks. We cannot find space for the lines).—H. B. (near the floor).—F. K. & B. (we shall be glad to see them).—C. B. (under our mark).—W. D. (shall be forwarded).—B. S. (we should be disposed to say removal of obstruction could not be insisted on. Inquiry, however, might show otherwise).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests of course with the author